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CAMERON'S "SPECIAL" STEAM PUMP.

These pumps, which are shown in the accompanying cuts, are called the "special," and are manufactured by A. S. Cameron & Co., whose works are at the foot of East Twenty-third street, New York City. Although comparatively a new concern we opine that but few older establishments can boast of a greater variety of patterns on a more extensive circulation of operating pumps. The smallest pump made has a steam cylinder of three and a-half inches with a water-cylinder of one and three-quarter inches, with five inch stroke, the whole machine weighing only sixty-five lbs., while the largest pump has a cylider of ninety-two inches, and weighs upwards of twenty-one tons. The pumps are in use on nearly all the U. S. Steamships, and are also employed, very extensively, in the English, French, and Russian marine service.

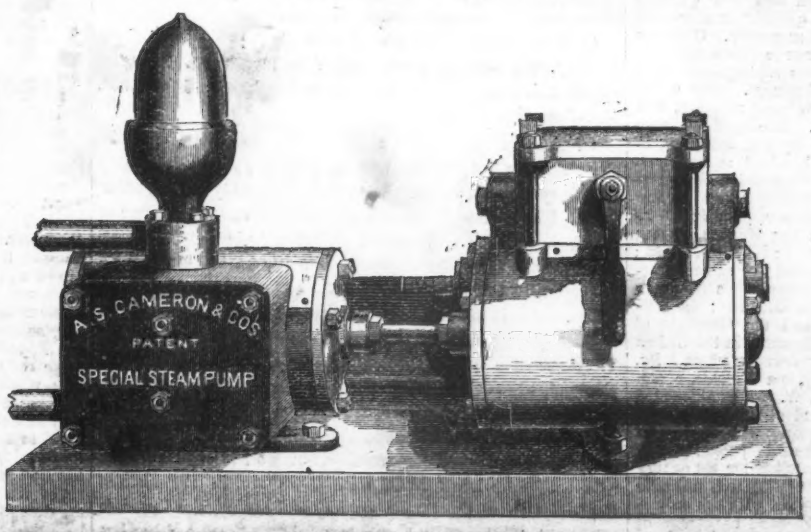
Five of them are upon the celebrated war vessel Dunderberg. In addition to marine purposes they are extensively used for mining and many of them have been sent to England, Ireland, Holland, Australia, California, etc. It would be almost impossible to name a country that has not a representation of the Cameron pump. At home they are none the less known or celebrated. During the present year the New York gas-light Company used two or three in sinking for a large tank, to pump the curb well. In going down they struck a bed of sharp quicksand. The strainer of the suction-pipe was almost constantly imbedded in it, but besides removing the water, the pump at times delivered sand through the pipes as rapidly as ten to twenty men could clear the shutes. In four weeks one pump discharged from 800 to 900 loads of sand, lifting the sand and water at times a vertical height of over 30 feet.

One severe test for the efficiency of these pumps is at the brewery of Kohler Brothers, in New York city. The pump is used to supply the brewery with water for cooling purposes, from the East River; it has a lift of 25½ feet verdical at low tide, the horizontal distance being 530 feet. This is a very severe test; yet the pump has never lost its suction in a single instance.

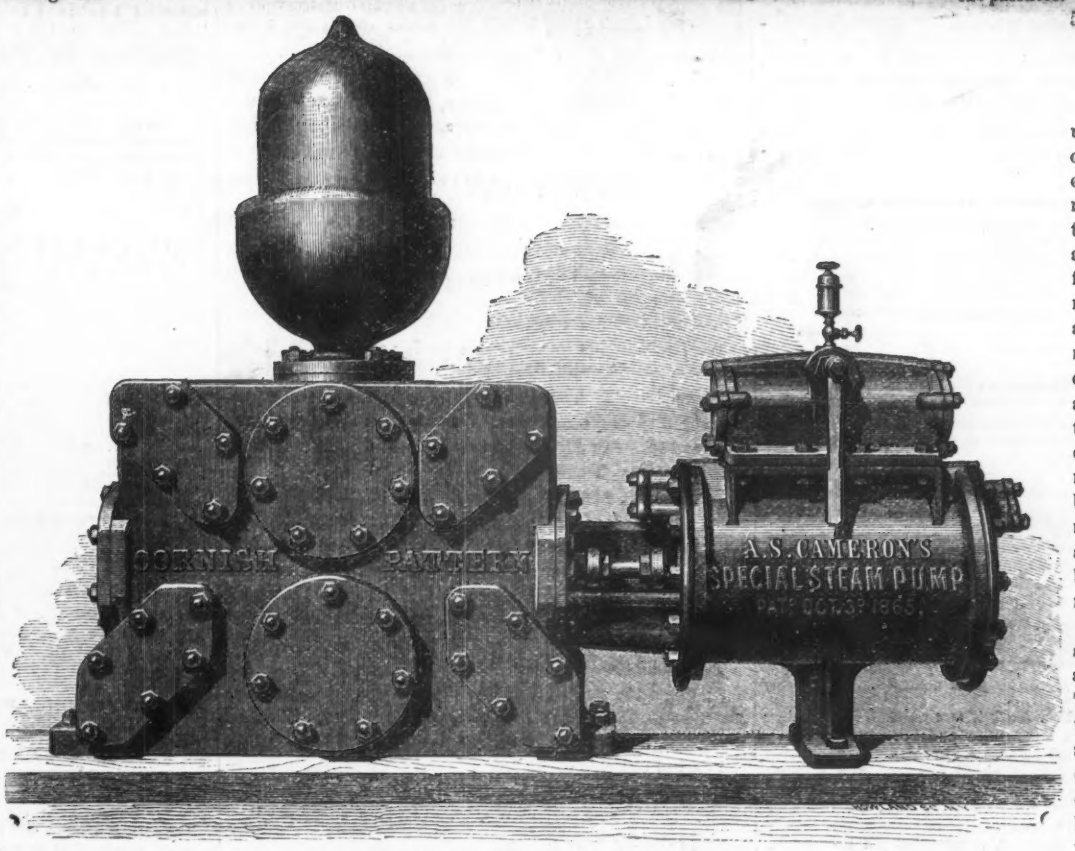
At the St. Louis Gas Works one of these pumps was in use for some time and while sinking a foundation, passed over 20,000 loads of sand without the least interfering with the proper action of the pump.

Messrs. Cameron & Co. were the first to supply steam pumps in coal mines, and formerly where a first-class pumping plant cost about $40,000 arranged upon the old plan, a better duty can be done with their apparatus, at a cost of about $7,000. Instead of the antiquated iron or wooden pumps with its long rods of either wood or iron reaching the entire depth of the shaft appropriated to its reception, a simple steam pipe of small diameter runs down the shaft, and connects with the steam pump at the bottom of the mine. Some of these pumps are working under a lift of 335 feet. To still further test their superiority as well as efficacy, they have been immersed 60 feet under water, and at that depth, silent and alone, faithfully performed their allotted labor.

Fig. 2 shows a form of the "special" pump called the "Cornish pattern" and being designed for heavy duty, is very strong and durable. All its parts are of the most substantial character. The water passages in the pump cylinder are equal in area to the bore of the barrel. They will pass sand as readily as water. One of them is now supplying the City of Stockton, Cal., with water, and one is now in course of construction for the City of New Bedford, Mass., and for a similar purpose. These pumps were designed for heavy duty around Pittsburgh, where they carry a pressure of one hundred and twenty pounds of steam.



CAMERON & CO.'S "SPECIAL" STEAM PUMP.—Fig. 1.



"SPECIAL" STEAM PUMP—CORNISH PATTERN.—Fig. 2.

In summing up the merits of the "special" steam pump, we do not hesitate to affirm that this pump is remarkable for its compactness and simplicity—its parts are few, strong and very plain. The operation is such that there is not an atom of steam used beyond what is necessary to move it. There is no 'dead centre' to the pump—it will start from any point. The pump cylinder is fitted with a piston and four valves of generous proportions. The interior of the cylinder is so arranged as to dispense entirely with 'channel ways,' 'ports' or 'passages.' By removing one bonnet the whole interior is exposed—turned inside out, as it were—and there is not a spot where a single speck can lodge without being detected. The valves used are of A. S. Cameron's patent, their construction being such that sand, mud, corn, cinders, etc., can pass through the pump, the valves working perfectly tight under any pressure. The whole machine works noiselessly. Its compactness, simplicity, strength, lightness, and consequent cheapness, must recommend its use in every situation where a pumping engine is required.

Every pump is thoroughly tested and tried at the shop before it goes to the purchaser, and is submitted to double pressure in order to insure its strength and good behavior. All the parts of the various sizes are made by systematic methods and upon the plan of reduplication, so that any part of one pump will fit and operate in any other one of the same size. This surely must be a great desideratum, if it should be necessary to order a part to replace one that should by chance be broken or injured.

In addition to the "special" pumps Messrs. Cameron & Co. manufacture direct acting and crank and fly-wheel steam pumps; steam pumps and steam engines combined, and air and vacuum pumps in every possible variety. The capital of the firm is $175,000, and they employ about 125 men. From four to five pumps per day are turned out, and they have orders ahead to keep them fully employed until the 1st of February, 1869. Messrs. Tangye Brothers, of London, Eng., manufacture these pumps under a license from Mr. Cameron, the patentee. Their operative force is about 500 men.

Tin in Olden Times.

Tin has been known and used from the remotest antiquity. We find mention made of it in the Bible, where it is noticed among the plunder taken from the Midianites, as a metal which was to be purified by fire. We also find it named in Scripture history among the articles of commerce which the Tyreans received from Tarshish. But although it may be inferred that the metal thus mentioned was pure tin, it may be remarked that the same Hebrew term also denotes the mixture or alloy of lead, tin, and other inferior metals, combined with silver ore or separated from it by smelting.

The Phœnicians carried on a trade in tin with Spain, and also with Cornwall in Britain. The Romans also obtained their supplies of tin from the same sources, principally, however, from Britain. It formed an ingredient in their bronze helmets, shields, and warlike weapons. The ancient Egyptian and Asyrian bronzes were formed of an alloy of tin and copper. Homer informs us that tin entered into the composition of the armor of Agamemnon and the famous shield of Achilles, and it is supposed that the weapons used in the Trojan war contained some proportion of tin.

There still remains in Cornwall the mouldering remains of the old furnaces and accumulations of the slag or dross from which these supplies were drawn, and occasionally ancient ingots of tin are found marked with Oriental cyphers and are commonly called Jew's tin, for the reason that the mines were farmed by the Jews in the reign of King John. These ingots

are very well reduced, and the cyphers are cast, not cut or stamped, in the metal.

It has been disputed whether the Phœnicians ever visited Britain, or supplied the Oriental world with tin from this source. The reason given is that the voyage of a thousand miles from the entrance of the Mediterranean Sea over a stormy ocean, was not likely to have been performed by those mariners in their frail vessels, who in the comparative quiet waters of the Mediterranean were accustomed to creep along the coasts, hauling their craft ashore in foul and stormy weather. Another reason given is that the Scilly Islands, which are the supposed Cassitorides, afford no evidence of ever having produced tin, but although this objection be received, it is generally acknowledged that Cornwall and the Scilly Islands were visited by the Phœnicians, and that they were there two hundred years before Christ, and that a portion of their pursuit was traffic in tin, and in these transactions they were joined by the Greeks and Romans. Herodotus, who flourished 450 years before Christ, mentions the tin islands of Britain by the name of *Caseiterides*, so called from the Greek word signifying "tin."

Sometime before Cæsar invaded Britain, one Publius Crassius, a Roman merchant, encouraged the Cornish Britons to improve their mines, and through his efforts tin was made an article of export to France. Diodorus Siculus, the famous historian and contemporary of Julius Cæsar, also speaks of the obtaining of tin from the islands lying between Europe and Britain.

Something About Pennsylvania Slate.

A correspondent of the Washington *Express*, writing from Upper Mount Bethel, Northampton county, says: The slate business has of late years made rapid progress in this section of Pennsylvania. New companies have been formed and new quarries opened, until now there are fully a dozen quarries in successful operation in the eastern part of Northampton county. Owing to the fact that shingles are not so plentiful nor so cheap as in former years, the demand for roofing-slate has rapidly increased; and has given a new impetus to the slate business. Most of the quarries in this county are worked to the utmost capacity, and yet the supply is not equal to the demand. Roofing-slate is sold at the quarries at from $5 50 to $7 per square, according to the quality. A "square" contains one hundred square feet. School slate (rough,) are worth $16 per thousand at the quarries. The following are the names of the principal quarries and the average number of "squares" taken out per day: Jorey, 20 squares; Pennsylvania, 100 do.; Ames, 20 do.; Hughes, 30 do.; Bray, 20 do.; Bangor, 50 do.; Hageman, 20 do.; Williams, 20 do.; Delaware, 10 do.; Chapman, 150 do. The first five named quarries are situated near Delpsburg, about seven miles from the Delaware river; the Bangor and Hageman at Uttsville; the Williams and the Delaware near Slateford, and the Chapman at Bath. The Williams is said to be the oldest quarry in the United States, and has been in operation nearly seventy years. Mr. John Williams, the proprietor of the quarry, is a Welchman, and came to this country many years ago. Mr. W. is a whole-souled clever gentleman, generous to a fault; and although he is not ambitious, and has never worked in his quarry with a view to amassing wealth, has accumulated considerable property and money. A few days ago he was offered $50,000 for his quarry by some eastern capitalists, but he avers that he will not take less than $80.000, as the slate is inexhaustible. He has only a few quarrymen at work, but, with his free and easy way of working the quarry, his profits amount to $80 per day. At Slateford, which is situated on the Delaware, near the Water Gap, there are two school-slate factories. At Mount Bethel Station, a few miles below, there are three factories. I am told that the market for school-slates is overstocked just at this time, although the Ames company, which has contracted to furnish slates for the freedmen's school, are doing a brisk business in this line. Mr. Ames, the chief of this company, is a brother of Oakes Ames, M. C., from Massachusetts. As might be expected, there is a good deal of prospecting for slate at this time, and slate property frequently changes hands. As an indication that speculation is rife, I heard a few days ago that some thirty acres of land, on which there were indications of slate, was sold to a party for $4,000, and the next day was disposed of to another party for $15,000. The slate is generally found in large layers or blocks ten or twelve inches in thickness. It is then divided into smaller blocks of convenient size, and with a chisel and mallet is split up into roofing and school-slate. The best quality is always used for school-slates. The miners or quarrymen are generally natives of Wales or England, and are employed because they were familiar with the business in the old country. A good quarryman receives from $3 25 to $3 50 per day. The opening of the Delaware, Lackawanna and Western Railroad, with its connections, has afforded the proprietors of quarries an opportunity to send their slate to distant markets. A route for a new road has been surveyed from Easton to Delpsburg, and another from Bath to Uttsville, and from thence to the Delaware river, to intersect with the D., L. & W. Railroad. The roofing-slates are sent to all parts of the country. The Pennsylvania company transport their slate to New Orleans. Besides roofing and school-slate, solid blocks are also shipped and used for door-slabs, pavements, etc. The "slate belt" extends along the eastern base of the Blue Ridge mountains, not often beyond eight miles from its summit. It extends eastward into New Jersey for twenty or thirty miles, and southward to North Carolina. There are several quarries in successful operation in Buckingham county, Virginia.

Important Discovery of Granite.

A correspondent of the New York *Times* writes from Saratoga Springs of some important discoveries and operations recently made within ten miles of that place. A bluff rising directly from some table land to the height of about 500 feet, and hitherto known as Mount Vista, has until quite lately been looked upon as only a common rock, like our own Palisades; but it is now ascertained that the whole mountain is of pure white Sienite granite, and equal, if not superior, to any eastern granite for monumental or other purposes, the grain being so fine that when dressed it closely resembles marble. Upon this discovery being made, operations were commenced to quarry, under the direction of able and experienced experts and engineers. "One blast," continues the correspondent, "threw to the distance of 200 feet a solid block of 100 tons in weight, completely sweeping away a number of oak trees averaging ten inches in diameter, besides throwing almost perpendicularly in the air, to the height of 150 feet, a block of four tons, which, on descending, rebounded to a distance of more than 200 feet from its former bed. Another solid block was blasted 56 feet in length, 20 feet wide, and 16 feet through, containing 17,920 cubic feet, and weighing 1,493 tons. From this block, it is said by practical and scientific gentlemen with whom I have conversed, columns 50 feet long could be hewn, as large as those in the Capitol at Washington."

☞ It has been suggested in England to unite Scotland and Ireland by a tunnel. The distance of the proposed terminí is about fourteen and a half miles, and the cost is set down at £3 150,000.

Practical Letters.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

ON THE VENTILATION OF COAL MINES.—NO. VIII.

BY J. W. HARDEN, M. E.

GUIBAL'S FANS.

In the fall of last year there were two of Guibal's fans in South Wales; upon them experiments were made. That at the Gethin collieries is 29 feet 6 inches in diameter, and 9 feet 8 inches in breadth. It is driven by a steam engine with a 24 inch cylinder and two feet six inch stroke. With 62 revolutions per minute, 132,570 cubic feet of air was obtained in the workings, at a water pressure of 1.3 inches; and 149,796 feet at the fan with a pressure of 2.6 inches. The quantity of coal consumed is not given, but the "horse-power in air" is set down as 55.62. Taking, then, the average quantity of coal consumed per horse-power per hour utilized, as given by M. JOCHAMS, and we get 6,755 cubic feet of air per minute, per pound of coal.

Of this same fan we have obtained further information very lately. With 100,800 cubic feet of rarefied air per minute discharged by the fan, 77,268 feet measured in the workings, at a consumption of seven tons of coal in 24 hours, we have 7,096 cubic feet of air per minute, as the useful effect of one pound of coal. Of this quantity of air 17,280 feet per minute is set down to natural ventilation.

Of the second fan I speak of, that at the Middle Duffryer colliery, the experiments are not of so favorable a character, owing, it is suggested, to a probable breakage. I will not, therefore, give them.

Of the fans used in this country I have met with no statistics; nor has my practice brought me into that relationship necessary for an accurate analysis and the study of their economy. I have come in contact with several examples, some of which have been well spoken of, but only in general terms. Some I have seen laboring hard, evidently having too heavy a "drag" upon them; others not quite so hard, doing their work easier. But in my inquiries generally, I have been unable to elicit anything further than that, "we get plenty of air." They are of the straight-vaned variety, commonly used in England, where the shaft is not deep enough for a useful application of the furnace. Some of them with which I am acquainted, I have seen in publications, called "The Guibal fan;" they are fans of good construction, but were in use before the "Guibal" was known. Of such there are, in the north of England, two at the Elscar colliery and one at the Fursdale colliery. Of the former, one is set in masonry and has but one central opening for the return air to enter by; the other is set in a wrought iron casing, and has a central opening on each side—that at the Tursdale colliery is, I believe, set in masonry.

Of that set in masonry at Elscar, the diameter of the outside of the vanes is 22 feet 8 inches, width of the vanes 5 feet, depth of them 3 feet. The vanes are fixed so as to form an angle of 45° with a line drawn to them, from the centre of the fan—this angle having been found by special experiment to give the best results.

The fan has seven arms to which two rims are attached, the outside one being 22 feet, and the inside one 16 feet 10 inches in diameter, to which the vanes, 26 in number, are fixed. The vanes are quite straight.

The fan is driven by an engine having a vertical cylinder, with a connecting rod attached to a crank at the extremity of the main shaft. The cylinder is 22 inches in diameter, and the length of stroke 22 inches. The engine is worked by three cylindrical boilers 30 feet long and 5 feet in diameter. Two are ordinarily sufficient.

With 40 lbs. pressure per square inch on the boilers, the average quantity of air circulating in the mine was said to be 88,000 cubic feet per minute, with a water pressure of 6.5 or 0 6. The average number of strokes per minute, was said to to be 60, and the coals consumed 6 tons 10 cwts. in twenty-four hours; being 10.11 lbs. per minute, and 8,742 cubic feet of air per lb.

The pit has two downcast shafts of the united area of 149 feet; one is the winding, and the other the pumping shaft; and two upcasts, having together an area of 127 feet. They are brought into one near the surface, which opens into the central part of one side of the fan.

It had been found unsafe to run this fan at a greater speed than 70 revolutions per minute. The highest water pressure attained was 0.9 inches.

The fan at the Tursdale colliery was an open-running one, until, by enclosing it temporarily with a wood casing, its effects were found to be increased; when, on permanently closing it, leaving an outlet at one end for the exhaust, the useful effect was doubled.

☞ MM. Leaute and Denoyelle have sent in to the Academy of Sciences a description of a submarine lamp which will burn without any communication with the atmosphere. The lamps hitherto employed for working under water are either fed with oil or lighted by electricity. The former require several men to work a pump continuously, and moreover cast a very feeble light; the latter are exceedingly costly. The new contrivance is simply a common moderator lamp, provided with a reservoir filled with oxygen compressed to the density of four or five atmospheres; it will burn of itself for three-quarters of an hour, and further improvements are likely to make it last much longer.

Mining Summary.

GOLD AND SILVER.

California.

Alpine County.—In our issue of August 22, we copied from the San Francisco *Times* the remarks of a correspondent upon the mines of the Imperial Quarries, and of one or two other prominent companies operating in Alpine District. We now have further intelligence from the same locality and through the same medium. The *Times* correspondent writes from Mt. Bullion, under date of July 10: "The Imperial Company's property, described in my last, is only one of a series of tunnel locations which, if once developed in accordance with the original plans of the proprietors, will open up a greater extent of mining ground than has ever heretofore been developed by the system of tunnels. I will mention among properties of this kind that of the Mount Bullion Mining Company, situated at this place, in Alpine District, and on the west bank of Carson River, and owned jointly by Mr. George T. Coulter, of Baltimore, and his uncle, Mr. Robert McColmott, of London. Their tunnel is designed to cut the Union, two Eastern slopes, Mount Bullion, Star of the West, Red, White and Blue, and Highland Mary lodes, any one of which gives good assays from top rock. The whole length of the tunnel to cut the Highland Mary lode will be about 4,500 feet, at which point the depth will be about 1,200 feet. The distance to the Union ledge is some 900 feet, and the depth at that point is between 500 and 600 feet. The tunnel is being run by contract, with three shifts of men, who average about sixty feet per month. The first contract was for 500 feet, 320 of which is already completed, which added to the 80 feet made before the contract was let, makes the total length 400 feet. I think there is hardly a doubt that 450 feet more will cut the Union lode where it is anticipated, and that sufficient ore will be extracted to pay all future expenses in completing the entire tunnel, and developing the mines that may be cut by the tunnel. The company owns the water front along the river for 1,800 feet above the mouth of their tunnel, which gives them a fall of 28 feet 10 inches, with the control of from 3,000 to 4,000 inches of water at the lowest stage of the river. Taken altogether, I consider this one of the most valuable properties in the State. So well pleased are the owners of it, that they work it on their own account, not considering it any object to form a company or corporation to aid in the work. The property of the Monitor Consolidated Mining Company is situated a half mile below, on the north side of Monitor Creek, and their tunnel runs nearly parallel with that of the Imperial Company. The whole length of their projected tunnel is about 6,000 feet, with a depth of over 1,600 feet. They will cut the Union and Eastern Slope leads in addition to those cut by the Imperial Company, and when completed will be in the same remarkable formation as is the Tarshish mine, and some 700 feet below the lowest workings of that mine. Their main tunnel is in upward of 400 feet, but unfortunately they suspended work upon it to run a lateral tunnel on the Eastern Slope lead, which at the slight depth attained on it shows a large body of low grade ore, which will be tested by mill process, when their mill is once in running order, to fully demonstrate whether, at their present level, it will pay or not. Of one thing they feel confident, that the main property has sufficient merit of itself to warrant the expenditure of hundreds of thousands for its development. This company also owns a fine mill site, with location for the mill at the dump. They have had a complete set of Whelpley & Storer's mining machinery for a mill lying at the dump for the last three years, with one of the improved turbine water wheels of over one hundred horse power capacity to drive it, and now I see they have commenced building the mill, which it is hoped will be in successful operation early this fall. It is the intention of the Tarshish Company to reduce their ores in the Monitor Consolidated Company's mill, which only necessitates the hauling of the ore two miles. Here within a radius of half a mile around Mt. Bullion are three gigantic mining enterprises in successful operation, and destined at no distant day to attract the attention of capitalists from all parts of the world to our favored mining locality. The early success of either of them will guarantee an influx of millions of dollars from London alone within the next year."..... Advices to the 15th ult. report that the Globe Tunnel has cut a small lode which assays $7 per ton. This is thought well of for so near the surface..... The Pittsburg mill was expected to commence running on I. X. L. ore about the first of September. In addition to the ore on the dump and stored in drifts inside—about 100 tons—Superintendent Slaven is making an effort to place in sight all he can, that no cause for delay may be charged to the mine. Both in the upper and lower levels fine ore is at the miners' command..... Mr. Geo. C. Potter, of San Francisco, is to raise a working and mill fund for further development of the Tarshish mine..... An engine of thirty horse power, boiler, hoisting works and pump, are en route from San Francisco for the Morning Star mine. Mr. Scott, the Superintendent, says that the furnaces will follow very soon. The works will be put up and running as soon as possible..... Mr. Arnold, the Superintendent of the Leviathan mine, exhibits samples of finer ore than before struck. Native copper could be seen all through it, even among the white quartz, and one specimen of blue black ore showed under the glass unmistakable silver sulphurets ..... The Morning Star Company have completed their road from the dump to the shaft..... The work of putting in the machinery of the Monitor Consolidated mill is progressing finely. The crusher is in position, and to-day the workmen are at work on one of the pulverizers.

Nevada County.—We have files of papers to August 17 from which we summarize the mining news as follows: The sulphuret works of A. F. Burr & Company were destroyed by fire on the 16th ultimo. The entire building, with the exception of the furnaces, together with the vats, gasometer, and all the materials, was destroyed. The furnaces are considerably damaged, and will very probably have to be taken down and rebuilt. The loss is estimated at $5,000. The walls will be rebuilt without delay..... The Kentucky Blue Gravel mine is situated just south of Snow Point. They are at work hydraulicing and making good wages, about 1,000 feet from where they are sinking from the channel. It is expected that in two months the workmen will reach the bed rock, should no accident occur. The shaft is now being sunk from three to five feet per day. A large amount of money has been invested in this enterprise..... The miners at South Fork, near Eureka, are doing first rate. Recently the Gem mine was opened by Cowles, Palmer & Co. It is located near Black and Young's mill. They ran a tunnel 65 feet, struck the ledge, and took out 20 tons of rock, from which they cleaned up $873 50, after crushing at Black and Young's mill. The Birchville company have struck the ledge in their new tunnel, and are now prepared to take out rock. The Birchville company have been working a year and have never levied an assessment, the rock paying well from the surface. Sweet & Co. have uncovered enough of their ledge to take out two hundred tons of first-class rock, which looks well, and will be crushed at Palmer and Everingham's new mill. The mill will be running in two or three weeks. Mulligan is also taking out fine rock from a four foot ledge, which will be crushed at the new mill. The Jim mine is being worked, and the rock obtained is looking first rate..... It is reported that about two hundred loads of rock from the Idaho company have been crushed, from

which $8,000 have been realized.....The American company, at Birchville, after a run of 24 days, made a partial clean-up, and took out $12,000.....Mr. Perkins, of San Francisco, has discovered an auriferous deposit near Omega, which is supposed to be very rich.....Splendid specimen rock is now taken from the Rising Star mine, 410 feet below the surface. It is completely studded with gold as bright as coin.....Twentw-two loads of rock from the Seven-Thirty mine yielded, at a recent clean-up, over $1,100.

Placer County.—The celebrated Green Emigrant quartz claim, on Bald Hill, is now, as we are informed, the property of Caleb T. Fay, of San Francisco, he having purchased it for the sum of $15,000. It is undoubtedly a good property, and if worked systematically and intelligently, will yield large returns. We also learn that the mine near Ophir, known as the Peter Walter claim, from which large returns have been realized, was recently sold to Walter Van Dyke, of San Francisco. It is reported that Van Dyke paid $10,000 for the entire ledge, and at that price it is considered a good bargain.....According to the papers the claims in the vicinity of Gold Run are paying well. Messrs. Steward and Kinder's claims are still paying largely. The Gold Run claim cleaned up last week some $2,000, the proceeds of twenty days' washing, of ten hours per day. The old Hokeard claim also cleaned up, in one week, about $1,500 or $1,600. This is considered a large yield, taking into view the disadvantages under which they have been laboring. Messrs. Moore, Miner & Co. have again cleaned up from $1,200 to $1,500, after a run of twenty days. Jason Brink & Co. cleaned up, after eighteen days' run, the sum of $2,100.....The Dutch Flat *Enquirer*, of August 15, has the following intelligence: On Tuesday night last, the water broke through into the Sacramento company's claim, better known as Kinder, White & Co's, situated near Lowell Hill. About 150 feet of the back of the tunnel, which was 700 feet in length, filled up. The whole work, inside and out, was completely destroyed.....A Gold Run correspondent writes: Mining is prosecuted here with much vigor, and from all appearances, with success. All the claims that have been working since early winter are still piping away lively, and among those that have but recently commenced, Judd, Huyck, and Brogan are now "running the cobble lively," and from all indications will make a long season of it yet. The Home Ticket company have suspended operations for this season.

Inyo County.—A correspondent of the Los Angeles *Republican*, writes from the Cerro Gordo mines, under date of August 1st, as follows: "Cerro Gerdo, lying about eight miles northeast of Big Owens Lake, in the Inyo range of mountains, and 40 miles from Camp Independence, is reached by a wagon road from the lake shore, which was but recently built. Teams coming from Los Angeles, make the detour from the foot of the lake, thus avoiding a long and heavy road, to the town of Lone Pine, by which means provisions have heretofore reached us. A bridge has been constructed across Owens river, connecting this place with Lone Pine. The river has been higher this month than ever before since the advent of whites in the valley. There are three stores here at present, and several more are soon to be set up. Provisions of all kinds are very dear in this camp, as you may judge by the following prices, to wit: Flour, $14 per cwt.; potatoes, 12½c. per lb.; onions. 15c.; beans, 15c.; ground coffee, 75c.; tea, $1 50; sugar crushed, 2 to 2¼ lbs. for $1; yellow, do., 3 lbs. for $1, rice, 15c.; keg butter, 75c.; salt 20c.; bacon, 40c.; fresh beef, 20c.; eggs, 15c. per doz.; tobacco, smoking, very ordinary, $1 50 per lb.; oysters, per can, 75c. to $1. Tinware, clothing, etc., at extremely high prices. There are six stores at the town of Lone Pine, nearly all of which depend upon trade from this place, which, owing to the scarcity of money, is very slim. The furnaces now in course of construction there promise favorably. One, that of Mr. F. Beaudry, now nearly finished, will be put in operation in about two weeks, with a capacity of smelting twenty tons daily. Caso district, some forty miles east of here, has been in considerable danger from an Indian outbreak, consequent from the killing of their chief, Manases, by a party of whites some weeks ago. As yet no disturbance has been created, and the miners of that section feel comparatively secure. It is currently reported that a German was killed by the redskins a short time ago. The supposition is based upon the fact related by a Mexican, who passed the place, that he saw blood and hair upon the rocks near a spring, where it is supposed the murdered man had stopped for water. The story looks the more probable as the horse belonging to the missing man has not been found, whereas his dog returned to Lone Pine. Among the principal mines of the Lone Pine District, mention might be made of the San Ygnacio, San Lucas, Belmont, Union, Habu, and the Friendship. There is no established mail route from this place to any point in civilization. The only communication is from Independence, some thirty-eight or forty miles distant, and that is carried once a week, when regular; for which service we pay the carrier 25 cents for every letter, and 12½ cents for every newspaper. All mail matter comes via Aurora, Nevada. Quite a lively time we have had within the past two weeks; no less than eight or nine shocks of earthquakes having visited us within that period."

Yuba County.—Concerning the Brown's Valley mines, a correspondent writing under date of July 23d, says: "In the Rattlesnake mine the former rich pay chimney was finally struck to-day in the north level, No. 3. Parties interested will easily understand me when I say that this oblique pay streak had first crossed the incline shaft above the north level, No. 1, at a depth of 70 feet, running from southward to northeast downward. It had been reached at the depth of 110 feet, in level No. 2, at a distance of 90 feet north from the incline, and has now finally been found at a depth of 200 feet and at a distance of 145 feet north from the incline. This settles the oblique streak theory also in this claim and makes it at once a more substantial property. The southern chimney is still holding out and supplying the mill with very good quartz. Should this chimney, as it is evidently expected, and as reliable indications already seem to show—should, I say, this chimney also be found crossing the incline at or near the bottom of the shaft, now 250 feet deep, then this claim should certainly be considered a permanently paying institution, and the stock could not help being worth a great deal of money. Things at the Pennsylvania still look more satisfactory and the next clean up will, I have no doubt, prove it so again very soon. The Jefferson Company are said to be making more than their running expenses. They have a fine ledge at the bottom of their shaft, now over 700 feet deep. The little Jackson mill, at Scabby Hill, still continues furnishing the necessary means for all the prospecting expenses. You see that in spite of so much foolish talk, Brown's Valley is still alive and trying hard to do the best she can."....It is stated that the Pennsylvania mill, after a run of eight days, or rather one hundred and ninety-two crushing hours, cleaned up, recently, over three thousand dollars.

Tuolumne County.—The "Big Flume," on the Great Rock Ditch, fell on Thursday, July 9th. This flume spanned the Big Gap, twelve miles from Big Oak Flat, and was the most stupendous and magnificent structure of its kind in the State. It was 3,200 feet long and 280 feet high, from the deepest part of the gap. It was a suspension—the wire cable being supported by thirteen towers, built at regular intervals in the gap, and was built in 1859 by Messrs. Holt & Conrad. Its fall is a sad loss to the Garrottes, Oak Flat, Deer Flat, Moccasin Creek and Pino Blanco, all of which depended upon the Great Rock Ditch for a supply of water. It is thought that the company will put pipes across the gap, as the diggings in that part of the county are by no means exhausted; but even if they do the entire county along the ditch will be dry in the summer.....The Dunderberg mine was located about four years ago, by a company of practical miners, and is situated on the north fork of the Tuolumne river. After repeated efforts the company have succeeded in leasing Major Warfield's mill, which is one of the best in this county, and are about to commence crushing the large amount of quartz which is now ready at the mine.....Prospecting is very active in Philadelphia District. The last crushing of twelve tons of ore from the Green claim, below Uniontown, paid $500.

Kern County.—Mining interests in the vicinity of Kernville ware, according to recent advices, a promising aspect. The new Lady Bell mill started in the latter part of July. It is capable of crushing from twenty-five to thirty tons per day. The Queen of the West mine, at Sandridge, is paying well. The first-grade ore yields $204 per ton, and the second grade $60 per ton. Evans' furnace, at Kernville, has been in blast some time, and has roasted thirty or forty tons of tailings for the chlorine process. He has just received his apparatus for generating gas to put these roasted sulphates through the chlorine process. He will soon have everything in readiness, when he will be able to work up three or four tons daily .....A correspondent writes: "Wadligh's new 10-stamp mill has started. It has capacity sufficient to crush from 24 to 30 tons of rock daily. The mills of Ellsworth & DeLand and Hutton & Co., are admirably arranged. Their ore is extracted cheaply and pays well."

Sierra County.—The papers say that King & Bros., of Poverty Hill, have done remarkably well in their mining claim this year, having taken out about $20,000. There is a large amount of good ground in this vicinity, and when the drain tunnel is finished (about 214 feet to run), sixty or seventy companies can work to good advantage. By another spring the St. Louis Water Company will have their ditch in, which will make Poverty Hill, beyond a doubt, one of the richest and liveliest mining camps in the mountains.....The Good Hope recently worked 50 tons of rock from their mine in the Montpelier mill, the ore yielding $20 to the ton.....The Port Wine correspondent says the Monte Cristo Slope Company are doing first rate, taking out more than double wages.....The Eagle Company is doing first rate also at present.....The Johnson quartz ledge, near the Docile, is proving richer than the most sanguine expected.

Trinity County.—The Weaverville *Journal* of July 25 has the annexed items: Business is flourishing and mining brisk at Indian Creek. Under the ditch of Stratten & Co., on the south bank of the creek, a number of rich paying hill claims have been opened this year, and there is but little doubt that there is an extensive range of this class of diggings in the Indian Creek section. The creek claims of Stoddard, Coumbes & Co. are yielding $500 a week, and bear evidence of being worked by skillful miners. Many good claims are being worked above town and on the tributaries of the creek, and general prosperity seems to be prevalent.....A letter from an old Trinity miner, now residing at Sawyer's Bar, informs us that a great deal of prosperous mining is being done there.....A gold-bearing quartz ledge of extraordinary richness has recently been discovered by Henry Engle and other parties on Rich gulch, a tributary of the lower East Fork .....The mines along Cañon Creek are yielding well, and considerable prospecting is being done.

Calaveras County.—The Mokelumne Hill *Chronicle* of August 7 has the annexed items: In old Rich Gulch, Staples & Co. have struck a vast body of very rich ore in the Palomo mine, and are actively engaged in erecting an additional battery to the one already in operation. They now employ eight stamps, but will soon run sixteen. It is said that they contemplate erecting another mill. Alexander & Co., in the same district, are still taking out the shining ore in large quantities.....At Railroad Flat, Mr. Said, proprietor of the Petticoat lead, has been crushing rock which yielded $100 per ton. He has two shafts sunk on the lode to the depth of one hundred feet each, and is at present engaged in driving a level to connect them. The great amount of water in the shafts is a serious hindrance at present.....Hill & Homer's new mill was recently tried, and christened the Quaker City.

Amador County.—The Jackson *Ledger*, August 8, says: Steve Kendall has commenced operations on his sulphuret mine on Grass Valley Creek. Thoss' sulphuret works jog steadily along, and we hear he has been successfully testing ore from several of the West Point mines.....Sunday last they cleaned up at the Coney & Bigelow mill, after a run of twenty days, and the yield was the largest ever taken out in the same length of time .....The proprietors of the Casco mine have at last struck the ledge, and it is looking well ...The famous Anaconda mine at Pine Grove, after having laid idle for some time in consequence of inability to keep out the water, has been cleared of its superfluity, and good quartz is being taken out, to be worked at the Italian mill on Else Creek. A large amount of refuse rock is also being crushed.

Siskiyou County.—It is said that a joint stock company has been formed for the purpose of bringing, by means of a ditch, a more ample supply of water to the rich placers in the vicinity of Mugginsville and Oro Fino.....A rich quartz ledge has been discovered in the Penning claim, near Mugginsville. Mr. Luttrell says it fairly sparkles and glistens with gold. The quartz is soft and easily pulverized, but incased in very hard rock. .....The editor of the Yreka *Union*, August 1, says: "Hon. J. K. Luttrell showed us yesterday several slugs taken from the claim of Mooers and Grooms, a short distance north from Mugginsville. These slugs range in weight from $1 75 up to $36 50, and are very handsome specimens. This is one of the best claims now in the county. They washed up over forty ounces one day this week."

Los Angeles County.—A Mr. Miller writes from the Soledad mines, that the mines are very rich, the lodes large and well defined. New works are being built, and the camp has every evidence of prosperity. A large number of new claims have been taken up, and prospecting is going rapidly forward. A substantial report from that quarter, in the shape of solid gold bars, is expected before a great while .....The San Francisco *Alta*, of a late date, says: A quantity of silver ore from the Zapata mine, Los Angeles county, near the place where gold was first discovered in California, was brought here by the Orizaba for reduction. This ore closely resembles the best from the Comstock lode, Nevada, and it is believed that it will work very rich. The mine is owned by Dr. Winston, one of the pioneers of California.

Plumas County.—The Quincy *National*, July 25th, says: Mr. Gamblin has sold his mining claim on Rich Gulch to Messrs. McBeth and McNeally, for $1,050. Courser & Co. have commenced cleaning up bed rock. The water has failed at this place, but will last for some time yet at other points in the vicinity of Twelve-Mile Bar.....The Greenville correspondent writes: Mining items are scarce. Wilson Bros. have been running for a ledge for some time, and have just got in. They are taking out some good rock. Taft, Waterworth & Co. are doing very well in their surface claim, near the Indian Valley mills.....The same paper, August 1st, says: Robert Stevens & Co. are working a river claim on the Middle Fork, at a point above Peoria bar. They have good prospects. Mr. Henry White is putting a wing-dam in the river, a short distance above Nelson Point. He got a fine prospect in the claim last fall, and it will probably pay big when he gets its dry.

Tulare County.—A Tail Holt correspondent writes: The mines in this vicinity are developing remarkably well this summer. The Sarah Campbell, owned by Carter & Co., has exceeded their most sanguine expectations, both in the richness of the ore taken out and the size of the lode. Maltby and Biggs are extracting large quantities of ore from their Eclipse lode, and a portion of it of unprecedented richness. They are getting rock on hand for another big run. Dr. James has been prospecting and working two of his lodes for several months past, both of which gave evidence of being two of the best lodes in the vicinity. Mr. Bullock, of Grizzly Gulch, is still at work on his placer claim, and is doing well .....The *Times*, Aug. 1st, says: Mr. Wadley, who has the Ellsworth and Deland's mill, on Kern river, made a run of a little less than a week, and cleaned up $1,840. New developments in these mines give indication of their becoming as rich as any in the State.

Mariposa County.—The quartz mill known as the Fremont Mill, near Bear Valley, was burned recently. The mill had been running the day previous, and it is supposed the fire caught from ashes thrown from the furnace near the wood pile. The mill was valued at from $15,000 to $20,000; insurance $5,000 .....The Pedro Goza mine, situated on Bear Creek, has been yielding splendidly for some time past. The last clean-up, after a run of five days, netted $1,800; thirty-six tons of rock were crushed. .....A rich quartz vein has been discovered within about a mile and a half of Lovejoy's saw-mill.

San Bernardino.—The *Guardian*, of Aug. 1st, says: Several of the miners of Lytle creek are reported to be doing well. A party of Frenchmen are averaging $40 per day. Two young men, prospecting lately, made $13 in one day working surface dirt. They anticipate a good thing when the gravel is reached.

Nevada.

The Comstock.—From the Virginia City *Trespass*, Mining Review for the week ending Aug. 29, we condense the following items of news relative to some of the mines on the Comstock: The hoisting works at the Daney mines were consumed by fire on Tuesday Aug. 25, a large portion of the machinery being damaged to such an extent as to render it useless.....The Sierra Nevada mill is working finely, and by actual experiment, allowing the rock will yield but $2 per ton, the fact has been demonstrated that a profit can be made upon it of $24 per day—in other words, that the ore can be mined and milled at a cost not exceeding one dollar and forty-two cents per ton! This is a remarkable statement, but nevertheless it can be substantiated by the figures. The stamps were stopped for half an hour, yesterday, and the mill cleaned up—or rather the copper plates were raised, cleaned, put down again and the mill started to work. The Superintendent, Robert Apple, does everything on the lightning express principle, which accounts for the wonderful revolution he is about creating in the silver mining in Nevada. Every natural advantage is seized upon and put to the best posible use. In the run of the mill 400 tons of ore was put through, which gave 90 pounds of amalgam, estimated to be worth $75 per pound (being gold), which would make the yield of the 400 tons $6,750, or at the rate of $16.87 per ton—or $15.45 per ton over and above the cost of mining and milling the ore, all working expenses, fuel, quicksilver, etc., included. .....$123,500 have been received from the Savage mine on August account. Some very fair ore has been met with in the south winze, fifth station, and the face of the south drift from the sixth level is in quartz. The mine last week yielded 1,086 tons of ore, of the approximate value of $40,416, the profits on which is estimated at $17,118, the ore averaging $37.21 per ton. Most of the ore came from the fourth and fifth stations, south mine, which are again in safe condition for working, but lack air.

White Pine.—This district is still creating a great stir among the miners of Nevada, and certainly if all the accounts, that find their way into print, relative to it are true, no one need wonder at it. Reports telling of the extraordinary richness of the ores, together with statements of the shipment of bullion, continue to fan the excitement. We are glad to find in so reliable paper as the Austin Reese River *Reveille* the following verification of much that has been said. It says:—It is now a fixed fact that the discoveries recently made in White Pine District are rich beyond all doubt. The mineral deposits so far as discovered, do not so much consist of ledge matter or veins as of "chimneys," or rather "deposits." The ore so far found, being near the surface, is a matter of course, in a chloride state. The richest mineral deposits ever found in the State, and doubtless, in the world, are now laid open to public inspection, and being worked in White Pine district. Nor is it a Comstock lode district. There are a number of these deposits found in separate and different localities, showing a large extent of mineral country. The original discoveries were made more than two years ago on the White Pine mountains, principally on the west side. These were thought at the time to be of sufficient importance to be taken East to secure a working capital on, and a mill; the Monte Cristo was built to work them: but before the mill enterprise was fully carried out the rich discoveries of Treasure Hill were made which so far discounted the original discoveries that they are not now worked. The locality now attracting the attention of the public is Treasure Hill, a high mountain lying immediately east of White Pine mountains and constituting one of its range of hills. It is reached by an easy sloope from the north, and is sufficiently steep to admit of being mined to advantage. The town of Hamilton is pleasantly located at the base of the northern slope, and possesses the natural advantages of good water and protection from the severity of storms in the winter time. A ten stamp mill is now *en route* to be built at that place which will infuse new life into it, and give the place a fixed and permanent character. Silver Springs is located south of Treasure Hill some five or six miles and has, besides the natural advantages of location a good supply of water, and is the place where Gen. Page has located his mill, which is rapidly approaching completion. This town is not improving very rapidly, and is destined to become a place of importance. It is usually called "Shermanfown" after Major E. A. Sherman, of our city, its founder. But the place of principal attraction and excitement is Treasure City, located on the west and southwesterly side of Treasure Hill, near its summit, and directly at the mines. At present every drop of water used there is hauled up the hill from the town of Hamilton and sold at six cents a gallon, but notwitstanding this drawback the town is already a centre of population and business. It reminds one of the early days of California with its cloth houses, log cabins, its drinking saloons and other evidences of early settlement. But Treasure city already shows signs of permanence in the character of some of its buildings. A graded road is being built by voluntary contributions, leading from Treasure City to Silver Springs and will soon be finished, connecting Treasure City with this place by a good wagon road, which will enable the Keystone, Eberhardt, and Blue Bell, (now only accessible to pack mules), and other rich mines to get their ore to Page's mill. There is now ore enough out and in sight in the district to keep a twenty stamp mill running a year. We make this statement from reliable authority, and are prepared to state that it will require at least ten years to work out these chloride deposits should they extend no deeper than water level. But we would not seek to create any undue excitement over them. There are people enough there now for the advanced season of the year, waiting

for something to turn up. They are not very well fixed for cold weather, and a large number will seek better winter quarters in Austin and elsewhere when the first snow comes. The effect of these rich mines upon Eastern Nevada, has already been felt and will be more appreciated as time rolls on. It is drawing a large population to a locality which, six months ago, did not have within the district a score of souls. There are now from one to two thousand people in the district, and the number steadily increasing. At present all the trade of the district is done directly with Austin. Teams are loading every day of the week for White Pine, and two stage lines run there, making a daily line, carrying passengers and fast freight. The great majority and principal mine owners and merchants of the district are citizens of Austin or were until they located there. The road, if we except the Toiyabe mountain and a few other places, is a good one all the way.

Reese River.—According to the *Reveille*, the Buel North Star Company is producing the richest ore in quantity that has yet been extracted from Lander hill. Of the large lot of 100 tons lately sent to the Manhattan mill for reduction, the assays of the pulp averaged at the rate of $482 per ton! Two tons, which were specially assorted from the first class ore, gave the enormous yield of $2,700 per ton! This is an indication of the pockets or chimneys of precious silver ores which lie beneath the surface of Lander hill.

Amador.—It is seldom we have occasion to mention the long-neglected district of Amador, which yet contains valuable mines. A lot of ore from the Rough and Ready mine was reduced at the Manhattan mill with the following result: 2 tons of first class ore gave a yield by assay of the pulp of $290 per ton; and 5½ tons of second class yielded at the rate of $84 per ton. The ledge of the Rough and Ready is large, and will produce great quantities of the second class ore.—*Ib.*

Cortez.—Some nineteen tons of ore produced by the Garrison mine in the district of Cortez, which were reduced at the Manhattan mill, gave the average yield of $763 per ton. The ore from that mine appears to improve in quality as depth is attained.—*Ib.*

Ione.—Since the Knickerbocker mill offered to do custom work the miners of this district have resumed operations in several ledges with as much vigor as their limited means would permit. According to the *Reveille*, the Indianapolis and Storm King ledges have been worked steadily and regularly since last fall, yielding each an average of 15 tons of ore per week, the first paying over $100 per ton, and the latter $150 per ton. The incline of the Indianapolis has reached a depth of 230 feet, and that of the Storm King a depth of 250 feet, and both mines look very well. Besides these several batches of ore have been taken out of the Hermit, Savage and Mountain Brow ledges, all paying handsomely.

Silver Peak.—The mines of Silver Peak District, says the Belmont *Champion* of August 12, are now being worked successfully, and will unquestionably soon be among the best paying mines in the State. The mills are now running and doing good work. We learn that the Silver Peak Company will make a shipment in a few days of $100,000. Professor Clayton's new improved crusher, which is being worked at this place, is said to be a complete success in all for which it was recommended or expected to accomplish. This district has long been regarded by all who have seen and examined the mines as one of the richest in the State, and from personal observation of the mines we are forced to the conclusion that they will prove to be rich. In speaking of Silver Peak we mean to include the Red Mountain District, which is now controlled by the same company.....The Austin *Reveille* notices the arrival in that city of twelve bars of bullion from the Centenary mill, consigned to W. S. Gage & Co. The bullion is of the average fineness of 851, and is valued at $13,800. It is the product of ore from the Eberhardt South, in the district of White Pine, which has already yielded a large amount of silver.

Bullion Shipments.—There were shipped from Austin during the month of August, through Wells, Fargo & Co.'s Express, 225 bars of bullion, weighing 67,172.13 oz., of the value of $266,474; of this amount the house of John A. Paxton & Co. shipped $118,244 89.

John A. Paxton & Co. shipped thirteen bars of bullion, of the value of $16,500, to Boston, the product of ore from the Buel North Star mine.

W. S. Gage & Co. received twelve bars of bullion from the Centenary mill, of the average fineness of 851, and valued at $13,800. It was the product of ore from the Eberhardt South, in the district of White Pine, which has already yielded a large amount of silver.

The amount of bullion shipped by the Manhattan Silver Mining Company, for the month of August, was $151,538 83.

John A. Paxton & Co. received five bars of bullion, of the value of $4,500, from the Knickerbocker mill at Ione; also, three bars of bullion, of the value of $2,670, from the Twin River S. M. Co.'s mill at Ophir canyon.

Montana.

We have copies of the Montana *Post* to Sept. 4th, containing flattering accounts from the various mining districts of this Territory. From Rochester we learn through Mr. Mathuss that Hendrie's mill, running on the Watseka lode, is averaging a clean up of $1,500 per week, above all expenses. Work on the Waurn mill is being rapidly prosecuted, and it is expected that it will commence running in forty days. Five arastras are running on a number of different ledges in the vicinity, and making average runs of about twenty dollars to the ton. The town of Rochester now contains about two hundrerd people.....From Mr. H. C. Cousins of German Gulch we learn that a tributary of Beef Straight Gulch, called American Gulch, has recently been found to contain rich deposits of gold and that it is now being successfully worked, although this gulch has been prospected for a number of years, gold has not been found in paying quantities until quite recently.....Wm. Nowlan, Esq., returned from Cable recently, bring with him 359 ounces of fine gold retort, the result of one week's run in his mill upon Cable ore. The richness of this remarkable lead continues unabated and is rapidly producing a fortune for all interested in it.....Active mining operations are being prosecuted in the upper portion of Last Chance Gulch. A new drain ditch which was commenced in November last, is now completed to the lower portion of claim No. 10, above discovery, at an expense of $8,000. On No. 9, above discovery, $17.00 per day to the man, is being taken out, and still richer deposits of gold are believed to exist in No. 10, where a horse whim is in process of erection. Just below the Point of Rocks and in front of the distillery a shaft is being sunk, in which steam power will be used as a mining assistant. Above the Point of Rocks the very best results have been obtained. Everything seems to indicate that the ground in Upper Last Chance will pay handsomely for a number of years to come. .....The Rutan Furnace has commenced operations at Jefferson City and has proved itself a success. It was set to work upon ores from the Alta Montana lead, and was run continuously for fifteen hours, at the end of which time five hundred pounds of rich metal, or crude silver bullion were taken from it. An assay of this metal shows it to contain silver to the value of $474 in coin per ton, or at the rate of about $100 to the ton of ore. This first run was made upon selected rock, but it was, also, made under the same disadvantages, so that the Rutan furnace, when it shall run with full charges, promises to be one of the greatest successes in the country. The operations of the smelter are being superintended by Mr. Fred. Holans, the same gentleman who was connected with the Essler furnace at Argenta last winter. One hundred tons of ore have been already taken from the Alta Montana lode and are now ready for reduction, and it is proposed to keep the furnace in constant operation.....The Canyon Creek miners are prosperous, Crary & Co., cleaned up, without the aid of quicksilver, recently, after two day's run from pay gravel, in dimensions 10 by 6 feet and four feet deep, $500 in fine, clean scale gold, each piece weighing from fifty cents to four dollars, and free of quartz. There are now about fifty men at work in that vicinity, and the camp is proving itself to be one of the richest in this section of the country. Only four feet of stripping is required to reach the pay dirt.....We learn from the Virginia City *Democrat* of Aug. 20th, that Messrs. Hussey, Dahler & Co., have received 1,707 ounces of bullion from Argenta, the proceeds of eighteen day's run from the Essler furnace. The lot is estimated to be worth $3,000.....Mr. J. M. Bradley says the same paper exhibits a fine retort weighing twenty-five ounces, amounting in the aggregate to $500; or $75 per ton, at $24 per ounce. The ore was from the "Branham" lode, on Mill creek.....From the Dur Lodge City *Independent*, Aug. 28th, we condense the following items of news: "Messrs. Prouse & Co., recently sold their mining property at Gold Creek, consisting of two water ditches, [several mining claims, etc., to the Rock Creek Ditch Company, for $10,000 in gold.....The James Stuart mill is to commence this week to crush custom rock.....The Hershfield mill, at Cable City, has been idle since the failure of the Thomas lode, is to resume operations upon custom rock. The first crushing will be on rock from the "North Atlantic,"

Colorado.

THE TREASURY MINING COMPANY.

EDITOR AMERICAN JOURNAL OF MINING:

In your issue of Sept. 5th, are extracts from the account of Granite District, Colorado, by an editor of the Rocky Mountain *News*, which are gratifying to the managers of Treasury Mining Co., because it is testimony in favor of that company's possessions and of Granite District, by a disinterested and competent observer.

The lack of full information caused that writer to allow the inference that Treasury Mining Co. own only 6,000 feet of mining property, and that their whole possessions are in granite, and he asserts that the company was organized *last winter*.

That company has not, of its own accord, drawn public attention to its possessions or doings; nor did it intend to until its works should become productive, and the value of the property be established by positive results. Since, however, you have legitimately spoken of us, an officer of the company would be glad to have you supplement your former account with some facts which did not come to the knowledge of the Colorado editor.

During the summer of 1865, W. B. Felton and Elias F. Dyer prospected on Red mountain, also on the west side of the range in the rear of Red mountain, and staked and claimed between 900 and 1,000 lodes of 1,600 feet each in Lincoln Mining District.

A company taking all this property—say 1,500,000 feet, or nearly 2,000 acres—formed in the spring of '66, under Mass. Laws. Mr. Felton was sent out that season to make partial developments, and succeeded in finding seven promising veins of gold ore, and one spot of rich argentiferous galena ore. All this was over on the western slope of the mountain range, about 20 miles west from Granite, and on the headwaters of the Colorado.

In '67 he was sent out to determine the extent of the galena ore, ascertain whether it were a true vein, and such as would readily yield ore enough to keep a smelting furnace running. He sank one shaft 50 feet, another 15 feet, and ascertained that this is a genuine lode, and a large one, but with brittle walls and much water, so that it was questionable whether it would pay, at present, to construct a mountain road and get over the needful machinery to a spot so difficult of access.

Returned from over the mountains, he went to Granite, and in a short time discovered and claimed 6½ lodes of 3,000 feet each, and brought home samples of ore from each of them, fourteen samples of which, upon treatment by S. Dana Hayes, State Assayer, Mass., yielded an averege of $264 of gold to the ton. Prof. Hayes says: "The samples of gold ores assayed for you are of a different geological character from those generally brought here from Colorado. These are true hematites, or hematitic iron ores associated with quartz. . . . You may expect a large deposit of the same kind of ore, and not a change into sulphuret of iron." Two shafts have now been sunk to the depth of 70 feet each, and the ore continues free from the sulphuret in both of them, thus confirming the opinion expressed above.

Dr F. Dyer remained in Granite through last winter, and discovered and claimed, after Mr. Felton left, three veins more, so that the company owns in Granite 9½ lodes, or 31,500 feet, and in Lincoln District, about 1,500,000 feet.

Their 15-stamp mill, on the west bank of the Arkansas, one and a half miles from the main shaft, is now just being finished and put to work, and a few days will prove the yield of the ores of the Magenta, the Robert George, and the equator lodes, under the ordinary stamping process. P.

Ohio.

A genuine gold fever is exerting its remarkable effects upon the good people round about Batavia, Ohio. We have the following account from a correspondent of the Cincinnati *Commercial*, writing from there, August 27. He says: "After a ride of twenty miles yesterday from the city to the town of Batavia, at which place I remained over night, and a drive of three miles this morning, I find myself in the "Elk Lick Gold Regions." I find men from all parts of the State, and also quite a number from Kentucky, all busy trying to secure their fortunes. "Elk Lick Place" seems to be the headquarters. Gold has been found on several other farms near Batavia, but not in such quantities as on "Elk Lick." I was shown some very nice specimens that were taken out yesterday. It seems to abound almost on the surface. Land has taken a great rise within the past two weeks. The "Elk Lick" farm was purchased two years ago at $10 per acre, and could have been bought at $13 per acre three weeks ago; it cannot now be purchased at $700 per acre. I witnessed an offer of that kind to-day. There have been three farms sold at the rate of $300 or $400 per acre. They lie three miles southeast of this place. People are flocking here by the score, all of whom expect soon to become rich. The accommodations are very poor; no place to sleep except under sheds, and a great many can't even secure that. There is to be a hotel erected here immediately, also several provision stores. Col. W. A. Ballas, of Stone Lick township, in this county, has twenty-seven men working the "Norris farm." It lies one and a half miles south of this place. He has had twenty-five years experience in the gold regions of the West. He seems to be confident of making it pay. The gold excitement has made a great harvest for the Batavians, especially the livery men. Heretofore their charges were moderate, being but $3 per day for a respectable "rig," which now costs your correspondent $8 per day, and almost impossible to get any at that. Hotel fare, heretofore $1 per day, is now $3 to $5, and very poor at that price. The saloon keepers also put on the tariff; ten-cen drinks can now be had for twenty-five, and beer fifteen cents per glass. There are four companies now at work in this vicinity. three on Elk Lick Creek, and one on John Dimmitt's farm."

Dacotah.

The following from a recent issue of the South Pan *Sweetwater Mines* gives an idea of the progress of mining in that new locality: "The Jennie Worrell lode, situated in the Shoshone District, is nearly on a direct line with the Cariso and Austin City. The company has sunk a shaft upon it eighteen feet deep, disclosing a vein two and a quarter feet in width, with both wall rocks in view, making it thus far a well-defined ledge. The company are actively at work determining its richness, and will soon have out seventy-five or one hundred tons of ore to be crushed in arastras. The Empire company is continuing the work upon their ledge, and have a shaft down to the depth of eighteen feet, four feet by six wide. They are taking out nothing but quartz, the vein being wider than the shaft at the surface. The character of the quartz is excellent, some of it exhibiting free gold in abundance. We were over to Yankee Gulch the other day and found them all doing well. Wilson & Co. are taking out from eight to fifteen ounces per day, and only working two or three hours per day either. They took out a fine nugget recently weighing but a little less than $100. If they had sufficient water to work the gulch as it ought to be, there would hardly be any limit to the amount of dust they would take out."

Oregon.

The Walla Walla *Statesman* says: "Mr. F. Jones, of Walla Walla, has left with us several specimens of gold-bearing quartz, taken from a ledge which he discovered on Burnt river, a short time since. The specimens are quite rich and would seem to indicate an important discovery."

Minnesota.

From the Superior (Wis.) *Gazette*, Aug. 29th, we learn that the stamp mill of the Wabashaw Mining Company, is enroute for the Vermillion mines, as also are the materials requisite for the erection of a furnace.

Washington.

By parties from Gray's Harbor says the *Transcript*, we learn that the gold diggers on the beach have had a wash up, and the result was good wages, and a margin. The miners are satisfied to continue operations.

Canada.

Patent metallurgy and patent medicines are equally injurious in their respective spheres. Both profess to effect remarkable cures, but oftener both kill the deluded patient. The Belleville correspondent of that excellent paper, the Toronto *Monetary Times*, writes of the series of discouraging events that have lately afflicted the Madoc gold district, mainly through the introduction of wonderful result-claiming processes, and of men of the same character, but hopefully says in concluding: "There are still some enterprising individuals, chiefly from the United States, who are resolute in trying to secure the profits which they believe are to be obtained by properly conducted enterprise in this district." When the reader learns, upon reading farther on, that among these "enterprising individuals" are the "Stevens' Flux" people, with their "properly conducted enterprise," no doubt his faith in the ultimate success of that locality will be greatly strengthened. Without any more patent processes we might hope for the success of the district, but with the Stevens' Flux cure, we fear there will be an end of it. Our cotemporary correspondent, writing under date August 24, says: "The record of the Quinte mining district, since the middle of May, contains little else than a melancholy chronicle of disapointment; one disastrous failure succeeding another with such undeviating regularity, that the thermometer of public confidence, like the mercurial thermometer in January, kept sinking until it has reached several degrees below zero. Men failed to do that which they confidently asserted they could and would do. Machinery failed to extract the gold, for the collection of which it was constructed. 'Quartz leads' failed to bear out the assays, which ascribed to them rich contents of gold and silver; and worst of all, mines failed to give profitable returns to those who worked them in good faith. First, the returns from the Richardson mine sank from $140 per ton (the result of the first experimental crushing in Daniel Scott & Co's mills,) to $4 per ton in their own mill, with a loss of mercury of more than double the value of the gold extracted. Next, the Wyckoff process was found to be quite inadequate to deal with the refractory ores of this region, and Daniels & Co. shut up their establisoment. Turley & Gilbert's mill, in which the reduction effected by the pan or grinding process, gave for sometime better results; but having been sold to other parties, reports were circulated which impugned the authenticity of the results obtained, and insinuated a wholesale system of salting; the consequence of which was that the mill lost the confidence of the miners, and came again into the possession of the original proprietors, who are about removing it to another locality. Next, the mill of the Bay State company, of which such great things were predicted by its projector, Dr. Otway, failed in extracting the 'color' of gold, either from the Richardson ore, or that of their own shaft; while scarcely a fraction of the quicksilver employed could be recovered. The mill of Mr. Berry too, in the township of Denbigh, although much superior in the completeness of its arrangements to any of the others, gave very poor results, and is now closed. The mill erected for Severn & Co., by Mr. Caldwell, in the 11th concession of the township of Marmora, was at work for a few days, with every prospect of a satisfactory return, when the front plate of the boiler blew out, fortunately without doing much damage beyond the stoppage of the work. The cleaning up, so far as they had gone, gave $20 to the ton. A new boiler has been purchased, and the mill will be at work again in a few days. The Anglo-Saxon company have got their works in running order at last. This is the most extensive concern yet established in the district. The machinery, which is a combination of the pan and Wyckoff apparatus, is of the most massive character, and is worked by a 75-horse power engine. No returns have, as yet, been made public; but I hear that some difficulty has been experienced from the clogging of the ore. Several of the mines from which experimental crushings have been made in the Eldorado mills, are loudly asserted to have been salted during the process; returns of from $10 to $30 having been made from rock which will not yield above $1 to $3, even by fire assay. This unworthy deception is said to have been practiced, not so much by mining speculators, as by tradesmen and tavern-keepers in the neighborhood, in order to keep up the excitement, and bring visitors to the villages, and customers to their establishments. From all I can learn I fear there is too much truth in these reports. The consequence of all this is, that confidence in the mines and mills has sunk to so low an ebb, that no one here is disposed to venture another dollar in mining stocks, or mining adventure of any description. As a climax to these mishaps, and to complete the general depression, the Richardson mine is now in the hands of the Sheriff, having been taken in execution last week. The debt of the company exceeds $18,000. Notwithstanding the prejudicial effect of these misfortunes, there are still some enterprising individuals, chiefly from the United States, who are resolute in trying to secure the profits which they believe are to be obtained by properly conducted enterprise in this district. Among others, Messrs. Jones & Co., from Fond du Lac, Wisconsin, are about to put up works upon Lot 23, in the 12th concession of Hungerford, in which they mean to use

the Steven's Flux. Some of the existing companies are also making such alterations in and additions to their apparatus, as they think may enable them to get out the gold which they firmly believe to exist within the limits of their respective claims; while others are turning their attention to the baser metals, and are forming companies for working the veins of lead ores, which are to be found in many places within the district. Several new discoveries of gold deposits of great apparent richness have also been made of late. In addition to those found in the 11th concession of Marmora, by Mr. Powell and Mr. Feigel, a mass of quartz has been developed on Lot 9, in the 6th concession of the same township, which is said to exceed in richness all that has been yet found. Mr. W. Gilbert is about removing his mill from Eldorado to this Lot, and it will be worked at as early a date as possible. Mr. Jeremiah Loucks, of the same township, has also got a quartz lead, which has returned to assay, by amalgamation, $14 per ton. Quartz leads containiug a promising show of visible gold have also been found on Lots 6 and 9 in the 3d concession of Elzevir. In conclusion, though it has turned out exactly as I have always maintained, viz., that it is useless to expect that every vein of quartz or dolomite will contain gold, or even that every true gold-bearing rock will yield the precious metal in paying quantity; yet there is every reason to believe that there does exist here and there in this district, beds of rock which contain deposits of ore of sufficient richness to afford a remunerative branch of industrial occupation to those who bring to their development the skill and the capital requisite to ensure commensurate returns.

NEW RICH DISCOVERIES REPORTED.

We see by a late number of the Belleville, Ontario, *Daily Intelligencer* that some rich discoveries have recently been made on lots 6, 7, 8, 9, and 10 in the township of Marmora, County of Hastings, Ontario, in what is generally known as the Madoc or Hastings gold district. The article, after alluding to the great richness of specimens coming from the Fiegle mine, and their being unlike anything previously found in the Hastings district, and their great resemblance to the quartz of Nova Scotia, and the overwhelming testimony expelling all doubt as to their genuineness, proceeds to give a more exact account of late discoveries in the township of Marmora, as follows: "Mr. Bleecker, on the day referred to, washed two pans of dirt taken from the surface on lot 6 in the eighth concession, which produced a handsome yield of gold. And not only on this lot, but in lots 7, 8, 9, and 10, the same results have been obtained. As our correspondent says, the lode is nearly North and South, dipping slightly to the West. It is about six feet in width; in some places the gold is nuggety, and in others generally diffused through the rock. The quartz being entirely free from sulphurets, renders it exceedingly valuable, as there is no difficulty in separating and saving the gold. The extent of ground covered by these discoveries, the favorable condition in which the gold is found and the richness of the quartz and the dirt, render the Marmora gold fields the most valuable yet discovered." We chronicle these discoveries with great pleasure; inasmuch as in our issue of August 15 last, in a statement of facts made to us in regard to the New York and Madoc Gold Mining Company, recently organized under the laws of New York, and whose properties chiefly lie in this township of Marmora, we expressed the belief that the Company's surroundings were in a high degree satisfactory, and that they had before them a fair chance of success. One of the 100 acre tracts belonging to this company adjoins lot 10 on eighth concession, and we learn that it is the opinion of miners on the ground that the lode runs across the company's lot.

Wales.

We take the following from a California paper—the Nevada *Transcript*. "We made an item a short time since of the discovery of rich gold mines in Wales, by Benjamin Lewis, an old California miner. An uncle of his, L. H. Charles, has recently arrived in this State, and confirms the reports in regard to the richness of the mines in the Manclochogg mountains. The discoverer has received a Government patent from England, has purchased the land from the owners, and will proceed to develop the mines."

COPPER.

Michigan.

The following products are reported for August by the Portage Lake *Gazette*:

QUINCY MINE.

Mass	4 tons,	1,135 lbs.
Stamp	75 tons,	1,045 lbs.
Total	80 tons,	180 lbs.

EVERGREEN BLUFF.

Mass	5 tons,	1,451 lbs.
Barrel	12 tons,	1,178 lbs.
Stamp	8 tons,	319 lbs,
Total	26 tons,	848 lbs.

KNOWLTON MINE.

Mass	2 tons,	281 lbs.
Barrel	3 tons,	768 lbs.
Stamp	10 tons,	1,638 lbs.
Total	16 tons,	687 lbs.

SHELDEN-COLUMBIAN MINE.

Mass and barrel	9 tons,	750 lbs.
Stamp	18 tons,	1,455 lbs.
Total	28 tons,	205 lbs.

RIDGE MINE.

Mass	2 tons,	104 lbs.
Barrel	12 tons,	315 lbs.
Total	14 tons,	419 lbs.

.....The Ontonagon *Miner* reports the Ogima's product for the month of August: Barrel work, 5,554 lbs.; stamp work, 12,582 lbs.; masses, 2,848 lbs.; giving total of 10 tons 984 lbs ..... From the Houghton District mines we learn through the *Gazette*, September 11, as follows: At the Red Jacket all work has been suspended, affairs settled, and the proprietors state that with the exception of the sale of village lots nothing will be done until business revives.....At the Isle Royale a small force are employed in opening ground in the south part of the mine.....At the South Pewabic the water launder is completed into the mill, and has been tested by turning the water through. But two or three leaks were found. Next week probably the pump will be dispensed with.....At the Quincy the stamps have commenced work again. The mine is having a "poor streak" just now..... The Shelden-Columbian product reported for last month is 27 tons—the result of fifty-five miners' labor. Since the commencement of operations there has never been any where near a full force of men employed.

California.

According to the Mariposa *Gazette*, the Phillips copper mine at Buchanan Hollow has changed hands. Improvements will be made in the smelting works, and an additional number of hands will be added, all of which will increase the amount of ore raised and smelted, and insure a successful and profitable working of this valuable mine.

Arizona.

We have no news from the Williams' Fork copper mines, further than that they are being worked.

IRON.

Michigan.

The Marquette *Mining Journal*, August 29, has the following relative to the iron mines and furnaces: The C. & N. W. extension has been completed to the Pittsburgh and Lake Angeline, and ore is now being sent forward *via* Escanaba. The first engine crossed the M. & O. R. R, on Sunday last, and the first Peninsula cars were taken into the mine on Tuesday. Capt. Dimond will now be able to send forward all the ore he can mine.....Shipments from the Barnum are nearly, if not quite, 5,000 tons. Pretty good for a new mine, with a working force of less than forty men. Captain Gray knows how to do it. The last blast of No. 1 stack of the Pioneer Furnaces is a trifle ahead of anything ever yet reported by a Lake Superior furnace. In a blast of five months and eight days, it made 2,680 tons of iron, with an average of a little less than 103 bushels of coal to the ton. If there is any other furnace that can beat these figures, we'd like to have the report.....The latest official report from the Schoolcraft furnace is up to August 9th, at which time it had made 452 tons of iron. The furnace went into blast the 28th June, and is now making 100 tons per week. The samples of iron from this furnace are about the best we have seen in this district. The product is being shipped as fast as made. The company has commenced work on their coal kilns, ten of which they expect to complete this fall. These kilns will have a capacity of about forty cords each, and will be what is known as the beehive pattern. The company has also a lime kiln in operation, in which they are burning an excellent quality of lime for their own use.

Manufacturing and Mechanical Notes.

No. XXXII.

Lock Stand for Umbrellas.

This invention combines with a tasteful umbrella stand, perfect security against the loss of an umbrella. It is suited to private dwellings, boarding houses, offices, stores, hotels, churches, theatres, and public buildings. By its use umbrellas need no longer be exposed to theft, nor be hidden away, or kept in the hand while wet, to soil or ruin clothing or a carpet.

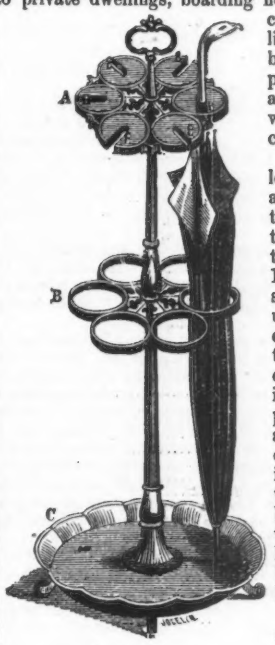


FIG. 1.

Figure 1 represents a six lock umbrella stand, with A, a lock section which secures the umbrellas, B, a ring section for receiving and holding the bows, and C, a drip. Fig. 1 represents a lock closed, the same as the one holding an umbrella in Figure 1. The check key 8 is just being entered. To throw the lock open, the check must be put in, and remain while the inner plate of the lock is turned a quarter revolution. When opened, as in Fig. 3, the check is not to be seen, but by putting the handle of an umbrella into the notch, and turning back a quarter revolution, the check will come to light, and the umbrella be locked up as in Fig. 1.

Every check key in each stand differs in its construction, and is suited to but the one lock for which it is numbered, so that no one having a check key for one lock can open another.

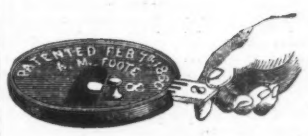


FIG. 2.

FIG. 3.

When the lock is open the key is inside ready for use, and when the umbrella is placed, and the lock closed, the key is thrown out to the depositor, who must replace it, in order to get his umbrella.

The key, which is practically a pawn-ticket for the article, is of less weight, and of no greater size than a nickel cent, and adds no perceptible weight to the vest pocket. The invention is at once ingenious and useful.

Honorable mention was made of it at the World's Fair in London in 1862, and a silver medal granted by the American Institute of New York city.

Stands are made to hold and secure from one to twenty-eight umbrellas. All are finished in ornamental bronze.

For further information, apply to A. M. FOOTE & Co., manufacturers, 105 John street, New York.

Photography in Boston.

MR. JOHN A. WHIPPLE, of Boston, was one of the first to successfully introduce photography into this country and much of what photography is to day, is due to his patient and unwearied exertions during the past eighteen years. The reception room of Mr. Whipple, at 297 Washington street, is about sixty feet square, looking on Washington street and Temple Place. Behind the reception room is an apartment 20 feet by 60 for keeping negatives, of which there are about one hundred thousand. Adjoining the negative room are apartments occupied by the oil-color, India-ink and crayon artists, also a private office, and several store-rooms. On the Washington street side, at the left of the reception room, is the finishing room, dark closets, etc., where all the chemical operations are carried on. The floor of the entire room is covered with sheet lead, to guard against accident by leakage. Still above this, on the top of the building, is the printing rooms, where the negatives are exposed to direct sunlight, and the paper received its impression from the negative on the silvered surface. But what strikes one as most remarkable about this establishment is the immense hall where the photographs are taken. It is 60 feet by 92 feet, thrown into one room; near the centre is an immense skylight, 31 by 24 feet; on the north, west and south sides are sky and side lights, after the European plan. With these combinations, any effect that is desirable can be produced, and a multitude of patrons can be photographed at once.

Dearborn's Blind Fastening.

This fastening is placed within the lower cross-bar of the outside frame of a window blind, and consists of a swinging spring-plate or catch, which at its outer end engages with the fixed hook or staple used on the window sill or on the exterior of the house, according as the blind is closed or opened, and a projecting horizontal lever-handle so arranged that by pulling the handle in the proper direction, the plate is caused to be disengaged from the fixed staple, leaving the blind free to be opened or closed as may be desired, when the spring-plate instantly interlocks itself within the hook either of the window sill or the house, according as the case may be.

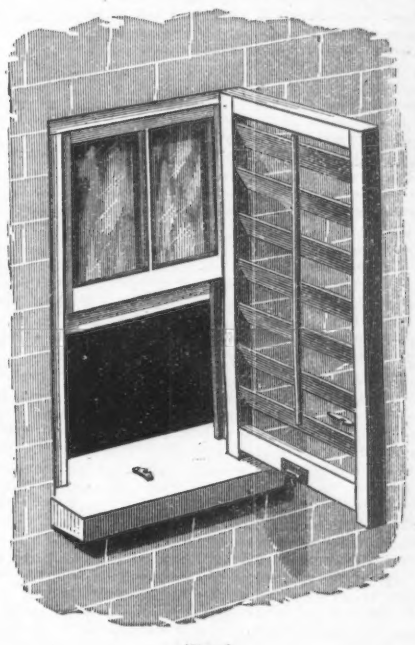
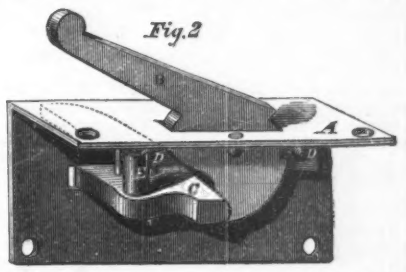


Fig. 1.

Fig. 1 is a perspective view of the blind as seen when opened. Fig. 2 is a view of the catch and lever as it is attached to the plate, when removed from the blind. The plate A, is made of thin metal and bent at right angles. In this plate are perforations to admit of screws to attach it to the blind frame. The lever-handle, B, is pivoted to the inner side of the bent plate. Engaging this lever, and fitting into a suitable recess formed in the inner end of the lever made to



contain it, is an arm of the catch-plate, C, which is placed at a right angle to the lever, or is hinged to the opposite angle of the bent plate to that which the lever is pivoted. Upon the catch-plate is the stud, E, and bearing upon this stud is one end of the spring, D, the opposite end of which is riveted to the bent plate near its edge. The force of the spring acting upon the stud presses the plate, C, into the recess of the lever, and by the pressure thus produced, the arm is held to the surface of the bent plate. The extremity of the plate, C, which interlocks with the fixed hook or staple attached to the window sill or the house, is shown in dotted lines through the upper surface of the plate.

This fastening is recommended for its cheapness and durability, and is less liable to get out of order than most of the fastenings now in use. At the Mechanics' Fair in Worcester, Mass., it received the only prize offered for such articles.

For further information, or for the purchase of rights to manufacture, or territory, apply to T. P. P., Box 5969, New York City.

Meerschaum Pipes.

One of Messrs. Kaldenberg's celebrated meerschaum pipes, estimated to be worth two thousand dollars, was on exhibition at the Paris Exposition of 1867, and received a prize in competion with all nations. The same pipe can now be seen at the rooms of Messrs. Kaldenberg, Nos. 4 and 6 John street, New York City, and to the curious or those interested in "meerschaum" or the fine arts, it is worthy of an inspection.

MARKET REVIEW.

Gold and Silver Stocks.—Our quotations as a whole range a shade lower. Nevadas continue depressed, and Colorados are not so firm. Among the recent sales at the mining board we notice 100 shares of New York, reg., at 21 10; 900 Rocky Mountain at 8@10c.; 100 Montana at 53c.; 100 Corydon at 11, and 200 Smith & Parmelee, s.20, at $1 50. Prices are thus quoted at the board:

FRIDAY EVENING, Sept. 18, 1868.

	Bid.	Asked.		Bid.	Asked.
Alamoda Silver	— 25	— 50	Kipp & Buell Gold	— —	— 10
American Flag	— —	— 35	Keystone Silver	— —	— —
Atlantic and Pacific	— —	— 50	La Crosse Gold	— 20	25
Banton Gold	— 25	— 35	Liberty Gold	— —	— 6
Bates & Baxter Gold	— 25	— 75	Liebig	— —	— —
Black Hawk G	— —	6 00	Manhattan Silver	110 00	— —
Bobtail Gold	— —	1 25	Midas Silver	— —	— 50
Bullion Consolidated	— 40	1 00	Montana Gold	— 52	— 55
Burroughs G	— —	— —	New York	1 10	1 15
Columbian G. & S.	— 4	— —	New York & Eld'o	— —	— 75
Combination Silver	6 00	10 00	Nye Gold	— —	— 3
Consolidated Gregory	4 00	4 15	Oxyd ee Mining	15 00	30 00
Corydon Gold	— —	— 15	Con. Colorado	— —	— —
Edgehill Mining	— —	3 00	People's G. & S. of Cal	— 6	— 12
Empire G	— —	— —	Quartz Hill	1 00	1 10
Gold Hill	— —	1 00	Reynolds Gold	— —	— 4
Grass Valley	— 37	— 40	Rocky Mountain Gold	— 10	— 11
Gunnell Gold	— 50	— 80	Smith& Parmelee Gold	4 60	4 70
Gunnell Union	— —	— 35	Sensenderfer	3 00	8 00
Hun G & S. bs	— —	— 80	Symonds Fork Gold	— —	1 00
Harmon G. & S. bs	— —	3 00	Texas Gold	— —	— 10
Holman	— —	— 5	Twin Riv Sil	— —	— —
Hope Gold	— —	— 10	Vanderburg G	— —	— —

Copper Stocks.—The most notable feature in Copper is that Caledonia is held reported at $10, an advance of $5 since our last.

Caledonia		10 00	Charter Oak		1 00
Canada		50	Davidson		50

Petroleum Stocks.—Central is higher, as also is Rynd Farm. The market is quite active, without any other notable feature.

	Bid	Ask'd.		Bid.	Askd.
Bennehoff Run	50	1 00	N. Y. and Alleghany		2 25
Brevoort		1 00	Pit Hole Creek	50	1 00
Buchanan Farm	55	65	Rynd Farm	23	25
Central	50	99	Second National		
Clinton Oil	1 10		Sherman & B		
Empire & Pithole			Tarr Farm		
Home	1 00		United Pet. Farms	10	15
Manhattan		10	Union	5 00	
National	2 00		United States	2 15	2 40

Miscellaneous Stocks.—Wallkill Lead is quoted at 7@10; Rutland Marble, $16 75; Del. & H. C., 129@129½; Cum. Cl Pf., 34@35; West U. Tel., 34½; Quicksilver Min., 22; Mariposa Pref., 10¼; American Express, 48¾; Merr. Union Express, 24¼; Pacific M. S., 110@111; Wells Fargo Express, 27¾; U. S. Express Co., 48¼@48½; N. Y. Central R. R. b30, 127½@128¼; Erie Railway, 48½@49; Erie Pref., 70½; Hudson River R. R., 140½; Mich. S. & N. I., 84¾; Reading R. R., 92½; Cle. & Pitts., 88¼; C. & N. W., 89¾; Chic. & N. W. Pref., 90; C. & R. I., 103¾; Mil. & St. P., 95; Mil. & St. P. Pref. s60, 94; Tol., W. & West., 62@63; T., W. & W. Pref., 77@77¼; Del., Lack. & W., 122; P., Ft. W. & C., 110@110½; Chi. & Alton, 155@156; Cleve. & Ash. R. R., 100; Ohio & M. R. R., 29½; Ohio & M. R. R. Pref., 78.

Government Stocks.—Government securities continue strong but quiet, at the following quotations:

U. S. 6s, 1881, coupon	114 @114½
U. S. 5-20s, 1862, coupon	114 @114⅛
U. S. 5-20s, 1864, coupon	109¾@110
U. S. 5-20s, 1865, coupon	111¼@111¼
U. S. 5-20s, 1865, new, coupon	109 @109⅛
U. S. 5-20s, 1867, coupon	109 @109⅛
U. S. 5-20's, 1868, coupons	109 @109⅛
U. S. 10-40s, ex. coupon	104⅛@104⅞

Foreign Exchange shows rather more movement; there being a better demand from importers. Rates are steady at the following figures:

London, (prime bankers')60 days'	108¾@109
London, (prime bankers') sight	109¾@109¾
London, prime commercial	108¼@108½
Paris, (bankers') long	5.18¾@5.17½
Paris, (bankers') short	5.16¼@5.15
Antwerp	5.20 @5.18¾
Swiss	5.20 @5.18¾
Hamburg (bankers')	35¾@35⅞
Amsterdam (bankers')	40⅜@40¾
Frankfort (bankers')	40¾@40⅞
Bremen (bankers)	79⅛@79⅝
Berlin (bankers)	71⅛@71⅝

Gold is quiet but firm at 144⅜@144⅝. Loans have been made to-day flat to 3 per cent. for carrying.

The prevailing ease of the money market noted during the last few weeks continues, and the amount of surplus capital appears to be in even larger excess. Call loans are freely offered upon approved securities at 3@4 per cent., and any transactions above these figures are rare exceptions. The best business paper is taken at 6@7 per cent. per annum.

American silver sells at 6½@7 cents below the price of gold, and Mexican dollars at 102¾@103 in gold.

Copper—Was very quiet until Wednesday, when 400,000 to 500,000 lbs. were bought for consumption at 23½c. for Portage Lake, and 23¾c. for Detroit; 100,000 lbs. Portage sold for November at 24c. The market closes firm.

Tin is quiet at 24c. for Straits; 26¾c. for Banca, and 24¾c. for English, without wholesale business.

Lead is in steady demand for consumption. Sales of this week foot up from four to five hundred tons at 6½c. for ordinary foreign.

Spelter is quiet at 6¼c. gold for Silesian.

Petroleum—Is dull at 15½c. for Crude, and 29½c. for Refined, in bond.

Receipts for the week ending Sept. 15	pkgs.	13,404
Exports for the week	galls.	1,328,928
Do. from January 1	do.	38,461,120
Do same time last year	do	20,262,781

The following is the quantity exported from other ports, Jan. 1 to Sept. 12:

	1868.	1867.
From Boston, galls.	1,741,612	1,456,852
Philadelphia	26,832,583	19 935,727
Baltimore	1,991,361	1,192 907
Portland	568,970	....
Total	31,134,256	22,645,486
Total exports from the United States	70,888,237	43,078,445
Same time in 1866		41.657.049
Same time in 1865		13 503 932

THE IRON TRADE.

NEW YORK, Sept. 18, 1868.

There is but a small demand for American Pig Iron. A good business is anticipated and iron is firmly held. Small sales of Allentown have been made at $42; Roberts' at $43 and $20@$38; 700 tons Grey Forge at $32 50; 300 tons White and Mottled at $30

Scotch Iron is firmly held at $43 for Glengarnock, and $44 for Gartsherrie, with small sales.

Scrap Iron. Sales 150 tons at $48@$50; 117 tons Lowmoor Scrap to arrive at Philadelphia, at $47 50; 75 tons Old Horseshoes, at $51 50.

Old Rails. Sales have been made of 3,000 tons on private terms 300 tons at Philadelphia, at $48 80.

New Rails. 2,500 tons, 50th sale, Welsh Rails, sold at $51, gold.

Bar from store continues in improved request at our quotations. Light numbers Russia Sheet, especially No. 9, are scarce.

BOSTON, September 16, 1868.

The market continues quite firm for Pig Iron, with sales of Scotch, Gartsherrie, Coltness and other brands from $42 to $45, and American at $40@45 per ton. Bar Iron is firm and sustains full prices, with a steady demand from the trade. In Russia Sheet Iron there has been very little doing, but market is firm, and full prices have been obtained for small lots.

Imports of Pig Iron from January 1st to September 12.

	1868.	1867.
From Great Britain, tons	15,275	23,799
Coastwise Ports	10,897	6,449

PHILADELPHIA, September 15, 1868.

Pig metal is held firmly, but there is not much activity. Sales of No. 1 Foundry at $42, and No. 2 at $38 50. Scotch Pig is quiet. Manufactured Iron commands $57 50 for Bars. Blooms are neglected.

Lehigh Valley Iron Trade.

The following table shows the amount of Pig Iron transported over the Lehigh Valley Railroad for the week ending Sept. 12, 1868, and for the season to that date.

From	Week. Tons.	Season. Tons.
Carbon Iron Co	170	5,840
Lehigh Valley Iron Co	210	7,990
Thomas Iron Co	130	20 445
Lehigh Crane Iron Co	470	18,185
Allentown Iron Co	625	14.585
Robert Iron Co	160	6 790
Glendon Iron Co	390	16,7 0
Other shippers	210	14,907
Total	2,365	105,642

Lake Superior Iron Trade.

Receipts of Ore and Pig Iron at Marquette, up to and including Saturday, Sept. 5, 1868, by the Marquette & Ontonagon Railroad.

IRON ORE.

	Previously reported.	For past week.	Total.
Lake Superior Iron Co	66,061	4,899	70,960
Cleveland Iron Co	24,797	914	25,711
Marquette Iron Co	6 911	212	7,123
Washington Iron Co	18,834	1 468	20.302
New England Iron Co	5,117	594	5.711
Edwards Mine	10,144	872	11,016
Pittsburg & Lake A. Iron Co	17,845	1,598	19,443
Ore to Local Furnaces	15,721	910	16,631
Total Iron Ore, tons	165,230	11,467	176,679

PIG IRON.

Morgan Iron Co	5,615	121	5,736
Greenwood Iron Co	328	91	419
Bancroft Iron Co	2 436	104	2,544
Collins Iron Co	3 004	144	3,148
Michigan Iron Co	3,379	106	3,485
Total Pig Iron, tons	14,762	570	15,332
Total ore and pig iron, tons	179,992	12,037	192,629

Market Prices.

NEW YORK, Sept. 18, 1868.

DUTY.—Bars, 1 to 1½c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate, 1½c. per lb.; sheet, band, hoop and scroll, 1¾ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

Am. pig, fy. No. 1, best.	$39 00	@43 00	Light rls for mines &c., at works	80 00 — —
" " 2x, fdry,	36 00	39 00	Do. delivered here	83 50 — —
" Grey Forge,	33 00	35 00	STORE PRICES.	
White and Mottled	31 00	— —	Pure white, for Cal. mar.	31 00 — —
Scotch Pig, No. 1, best bd	43 00	45 00	Scotch Pig, No. 1, best bd	43 00 45 00
" " " outside	43 00	— —	" " " outside	43 00 — —
Scrap Iron, ex ship	46 00	— —	Scrap Iron, ex ship	46 00 — —
Old rails	46 00	49 00	Old rails	46 00 49 00
R.R. Iron, For., fm Stock gold	51 50	52 50	R.R. Iron, For., fm Stock gold	51 50 52 50
R R. Iron, For., to imp.	50 00	— —	R R. Iron, For., to imp.	50 00 — —
" " Amer, at wks. currency	77 00	— —	" " Amer, at wks. currency	77 00 — —
R.R. Iron, Am., deliv'd	80 00	— —	R.R. Iron, Am., deliv'd	80 00 — —
Solid Steel rls. For, gd.	110 —	— —	Solid Steel rls. For, gd.	110 — —
Stl rails of any pattern at works, currency	80 00	— —	Stl rails of any pattern at works, currency	80 00 — —
Stl rls of any pat. d. here.	83 50	— —	Stl rls of any pat. d. here.	83 50 — —

STEEL.

Bar, Swedes, ord'y sizes	— —	155 00	English, cast (2d and 1st quality) per lb	18 @23
Bar, Eng. and Am., rl'd	— —	100 00	English Spring (2d and 1st quality)	10 @12¼
Bar, Eng. & Am., com.	— —	90 00	English Blister (2d and 1st quality)	11½ 20
Scroll	130 00	175 00	English Machinery	13½ 16
Ovals and half round	125 00	@155 00	English German (2d and 1st quality)	14 16
Band	130 00	— —	American Blister, "Black Diamond,"	10½ 16
Horse Shoe	130 00	— —	American, Cast, Tool " "	19 —
Rods, ¼@3-16 inch	105 00	165 00	American, Spring " "	10 13
Hoop	135 00	140 00	American, Machinery " "	— 13
Nail Rod, per lb	9¼	10½	American German " "	10 13
Sheet, Rus. as'd. Nos. (gold)	13	14		
Sheet, s'gle, D. & T. com	5	6½		
Rails, Eng., gold, ton	51 00	52 00		
Rails, American	80 00	81 00		

From the Pittsburgh Commercial.

PITTSBURGH, September 12, 1868.

The market during the week has ruled firm, with a fair demand for most descriptions. Prices have undergone no quotable change. The sales of charcoal irons show a material falling off, as compared with the previous week; while, on the other hand, the sale of anthracite and bituminous coal, smelted from Lake Superior ore, show a large increase.

The week's operations were: Anthracite, 1,430 tons; charcoal, 201 tons; bituminous coal smelted, 1,210 tons. Total, 2,841; being an increase over the previous week of 721 tons.

ANTHRACITE.

500 tons White	$35 00—6 mos.
50 tons No. 1	42 00—4 mos.
50 tons B. No. 2	38 00—4 mos.
60 tons R. S. Hard, No. 3	38 00—5 mos.
10 tons Mottled	38 00—4 mos.
50 tons White and Mottled	private terms.
200 tons " "	private terms.
100 tons No. 3 Gray Forge	38 00—4 mos.
20 tons No. 2 Foundry	42 00—4 mos.
20 tons No. 1 Foundry	43 00—4 mos.
20 tons No. 1 Foundry	41 50—cash.
50 tons Red Short	37 50—6 mos.
200 tons No. 3 Forge	40 00—4 mos.
10 tons No. 3 Neutral	38 50—4 mos.
10 tons " "	37 50—5 mos.
10 tons " "	38 00—4 mos.
70 tons " "	38 50—5 mos.

CHARCOAL.

21 tons No. 1 Foundry	45 00—4 mos.
180 tons No. 2 Forge	45 00—4 mos.

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORES.

400 tons Neutral Forge, to arrive, a favorite brand	38 00—6 mos.
200 tons Good Medium Gray Forge	39 00—4 mos.
200 tons " " " "	39 00—4 mos.
170 tons White	36 00—cash.
120 tons Good Medium Gray Forge, at furnace	36 00—4 mos.
120 tons " " " " "	37 40—4 mos.

BLOOMS.

20 tons Missouri Blooms	100 00—6 mos.

CINCINNATI, Sept. 14, 1868.

PIG.—There is an improved demand, with a firmer feeling in the market. A disposition to buy more freely is evinced by manufacturers.

	Per Ton.
Hanging rock H. B. mill	$36 $38—90 days.
" " H. B. foundry	38 40—90 days.
" " Cold Blast	53 —90 days.
" " Car Wheel	55 60—90 days.
Tennessee Cold Blast	40 42—90 days.
Missouri	45 47—90 days.
Jackson (stonecoal) foundry	38 39—90 days.
Blooms	95 100—60 days.

MANUFACTURED.—Prices steady, with moderate demand.

	B.		C.	C.
Flat bar	3¾	4¼	5	5½
Horseshoe iron	5¼	5¾	6½	7
Heavy band	4½	4¾	5¾	6
Round and square	3¾	7¾	5	9
Saddle-tree	5	5¾	6¼	7
Hoop and light band	5	9¼	6¼	10¾
Oval iron	4½	5	5¾	6½
Half oval and half round	4½	5¼	5¾	6½
Angle iron	5¼	6¼	6½	7½
T and hollow rail iron	5¾		7	
Saw-mill track	5¾		7	
Sheet iron 10 to 17	5		8	
Sheet iron, 27	6		9	
Boiler plate, 3-16 to 5-16			6¾	

MILWAUKEE, Wisconsin, Sept. 14, 1868.

PIG IRON.

Arrivals continue to be very light, hardly keeping pace with the requirements of manufacturers, while they are using considerably less than was anticipated early in the season.

Buffalo Union, A. 1	$49 00
Buffalo Union, B. 1	46 00
Lake Superior No. 1 (charcoal)	45 00
Lake Superior No. 2 (charcoal)	42 00
Lake Superior No. 3 (charcoal)	43 00
Iron Ridge, No. 1 (Sweed's)	43 00
Scotch	48 00@53 00

MANUFACTURED IRON.

Flat Bar	$0 3¼@$0 4¼
Horse Shoe	5 5½
Heavy Band	4½ 5¼
Hoop and light band	5 10
Eagle sheet iron	6¾ 9½
Boiler sheet iron	5¾ 6¾
Round and square	3¾ 7¾
Oval	4¼ 5
American spring steel	11½ 13½
Plough steel	11½ 13½
American tool steel (best)	17½

IRONTON, Ohio, Sept. 10, 1868.

Says the Ironton *Register*: "There is no change to note in the demand for iron. The views of holders still remain favorable. Rates are very firm. Transactions, however, continued limited. Some limited transactions have occurred at rates slightly below our quotations, but the metal was not of chosen brands.

"The receipts of metal at present are in excess of shipments, but as navigation up the river opens, the demand will become better. We quote:

Mill, hot blast	$36 00@37 00
Foundry, hot blast	38 00@39 00
Cold Blast	55 00@60 00
Bituminous forge (Belton)	37 00

"Bar iron offers but little business, for the reason that there appears to be no endeavors on the part of the manufacturers to push trade at present rates. An advance in bar is looked for. Rates now 3¾@4c.

"Nails continue in good demand at $4 60 for 10d.

LONDON, August 28, 1868.

In Staffordshire the trade maintains the recent improvement, most of the works are able to keep the men employed full time, and there is a general expectation that the change for the better will prove permanent. The railway companies are ordering rails, and other sorts of iron, and it is clear that prices will not be lower. In Welsh the change of weather has enabled operations at the works to be carried on with more regularity than for some weeks past, and the mills and forges have been fairly employed. The rails manufactured are principally for the American markets, the advices from which are considered favorable as to future requirements. From the Continent inquiries continue few in number, but there is a fair prospect of an increase in the demand. In the home trade the improved feeling already referred to is fully maintained, and considerable engagements are likely to be entered into before long, the stocks of buyers being unusually low. There are also signs of revival in the demand for plates, consequent upon the increased vitality in the shipbuilding trade. In Swedish iron the demand has again improved, and some considerable transactions have taken place. In Scotch pig-iron the tone of the market generally has much improved, and a good business has been done. Prices have advanced to 53s. 3d. cash, and 52s. 6d. one month.

Bars, Welsh in Lond.	£6	7 6	@	Do. railway, Wales.	£5	17 6@£6 0 0
Ditto to arrive	6	5 0	.. ....	Do. Swd. in London	9	17 6 10 2 6
Nail rods	6	15 0	7 0 0	To arrive	10	0 0 10 2 6
" Stafford in Lond.	7	10 0	8 10 0	Pig, No. 1, in Clyde	2	13 3 2 17 3
Bars	7	5 0	9 10 0	Do. f.o.b, Tyne, Tees.	2	9 6 .. ....
Hoop	8	2 6	9 15 0	Do. Nos 3, 4, f.o.b. do	2	6 6 2 7 0
Sheets, single	9	0 0	11 0 0	Railway chairs	5	10 0 5 15 0
Pig, No. 1, in Wales	3	15 0	4 5 0	" spikes	11	00 0 12 0 0
Refined metal, ditto	4	0 0	5 0 0	Indian Charcoal Pigs		
Bars, common, ditto	5	12 6	5 15 0	in London, pr. ton	7	0 0 7 10 0
Do. merch. Tyne or Tees	6	10 0	....			

STEEL.

Swed., kegs (rolled)	£14	5 0	.. ..	Swed., in faggot	£16	 0
" (hammered	14	15 0	15 00	English, spring	17	.. .. 23 .. 0

THE COAL TRADE.

NEW YORK, Sept. 18, 1868.

The trade at present is brisk, shipments have been quite heavy, and orders remain unfilled. The upward tendency of the market is less apparent, and we notice that there is less inquiry for cargoes. It is a general acquiescence that if prices be kept regular trade will be active, but if a further rise should take place a break down may be anticipated before the close of navigation.

BOSTON, September 16, 1868.

English Cannel has been selling at $17 for large and $19 for small lots. In Sydney and Picton sales at $8@8 25 by the cargo, and Cumberland at $8 per ton. Anthracite in retail lots sells at $8@8 per ton, and cargo sales at $7 @7 50 per ton.

PHILADELPHIA, September 15, 1868.

There is rather more doing, and prices are well maintained.

The following table exhibits the amount of Coal that was passed over the various routes of transportation from the Pennsylvania Coal districts for the week ending September 12, 1868, and for the season to that date. A comparison is also made with the amounts transported the corresponding week in 1867, showing the increase or decrease, as the case may be.

	1867.		1868.		INC. OR DEC	
	WEEK.	TOTAL.	WEEK.	TOTAL.	WEEK.	YEAR.
Phil. & Reading R. R.	70,716	2,261,931	63,625	1,997,911	d 7,091	d264,020
Schuylkill Canal	22 607	659,054	37,037	569,114	i 14,430	d 89,940
Lehigh Valley R. R.	43 353	1 454,331	53,241	1,638,292	i 9,888	i183,861
Lehigh Canal	35,979	631,330	34,765	585,103	d 1,214	d 49 227
Scranton North	13,429	307,449	16,783	386,791	i 3 354	i 79,342
" South	20,764	963,210	22,927	762,166	i 2,163	d141.044
Penn'a Coal Co. Rail.	21,157	572,748	21,093	635,453	d 64	i 62,705
Penn'a Coal Canal	951	15,486	721	19,749	d 230	i 4,263
Del. & Hudson Canal	45,245	939,839	51,225	1,081,437	i 5,980	i 141 598
Shamokin	10.929	331 835	11,693	339,331	i 763	i 5,496
Trevorton	50	30,798	1,150	18,716	i 1,140	d 12.082
Short Mountain	1,518	50,012	3,742	76,830	i 2,223	i 26,818
Lykens Valley C. Co.	1,623	44,850	2,170	60.824	i 536	i 15.973
Huntingd'n & B'd Tp	.....	164,800	6,960	179,190	.....	i 14 390
W'mstown Coal'y, E.	.....	62 000	.....	120.115	.....	i 58,115
Wyoming South	11,804	220,291	13,354	196,263	i 1,550	d 24.028
Wyoming North	.....	13,133	5,716	40,803	.....	i 24,670
Lehigh & Susq. R.R.	12,941	365,568	32,241	598,090	i 19 300	i 233,722
Total	313,076	9,032.655	368,443	8,328,078	.....	.....
	.....	8,328,078	313.076	.....	.....	.....
Increase	.....	704,577	45,367	.....	.....	.....

Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR THE WEEK ENDING SEPT 18, 1868.

	RAILROAD.	CANAL.
St. Clair	42,415	....
Port Carbon	8.408	12 542
Pottsville	2 991	1,582
Schuylkill Haven	32.352	20,679
Auburn	4 343	....
Port Clinton	6 618	1,411
Company's use	2,864	.....
Total for Week	89.891	36.214
Previously this year	1,997,911	569,114
Total	2,087,802	605,328
Same time last year	2,340,805	681,992
Increase	253,003	71,664

Lehigh Canal Coal Trade,

Shipped for the week ending Sept. 12, 1868.

WHERE FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
MAUCH CHUNK		
Lehigh Coal & Navigation Co.	....	....
Summit Mines	13,075 14	216,912 19
Room Run Mines	....	13,345 06
John Laubach & Co.	....	....
Total	13,075 14	230,258 05
BEAVER MEADOW REGION.		
W. T. Carter & Co.	468 02	11,313 18
Spring Mountain Coal Co.	285 07	1,686 16
Thomas Hull & Co.	945 13	6,335 07
Honey Brook Coal Co.	2,833 02	27,919 09
German Pa. Coal Co.	464 04	7,697 03
Other Shippers	....	1,072 13
Total	4,996 08	56,520 06
MAHANOY REGION.		
McNeal Coal & Iron Co.	....	....
Knickerbocker Anthracite Coal Co.	....	94 14
North Mahanoy Mines	....	65 15
Delano Mines	....	....
Primrose Mines	....	....
Walter Brothers & Co.	....	....
Mount Etna Coal Co.	....	854 05
Trenton Coal Co.	....	....
Glendon Coal Co.	....	....
Thomas Coal Co.	....	94 06
Williams & Herring	....	....
New Boston Coal Co.	84 00	361 06
Other Shippers	....	248 03
Total	84 00	1,718 09
HAZLETON REGION.		
A. Pardee & Co.	2,543 04	42,452 12
G B. Markle & Co.	1,274 02	24,709 17
Wm. S. Halsey & Co.	....	946 13
Buck Mountain Coal Co.	1,045 03	11,665 14
Sharpe, Weiss & Co.	1 325 00	23,752 09
Coxe Brothers & Co.	579 17	6,262 05
Ebervale Coal Co.	643 01	16,894 16
stout Coal Co.	373 19	6,701 12
Harleigh Coal Co.	1,224 19	13 862 04
Ashburton Coal Co.	....	64 06
Highland Coal Co.	441 05	11,203 05
Jeddo Coal Co.	....	....
Pardee Brothers & Co.	....	....
Mount Hall	....	....
Woodside	225 10	5 032 13
Latimer	195 11	3,846 10
Sugarloaf	95 00	1.141 06
Other Shippers	149 08	3,820 04
Total	10,118 19	172,356 06

UPPER LEHIGH.		
Upper Lehigh Coal Co	933 14	11,740 17
Total	933 14	11,740 17
WYOMING REGION.		
Newport Coal Co	....	....
Valley Coal Co	....	....
Warrior Run Mining Co	....	....
Parrish & Thomas	270 05	5,884 09
New Jersey Coal Co	220 15	3,894 60
Preston Colliery	....	....
Lehigh & Susquehanna Coal Co	....	....
Germania Coal Co	....	4,301 12
Franklin Coal Co	....	....
Audenreid Improvement Coal Co	....	....
Wilkesbarre Coal & Iron Co	4,109 16	78,373 14
Union Coal Co	....	....
H. B. Hillman & Son	...	....
Wyoming Coal & Transportation Company	....	....
Mineral Spring Coal Co	....	....
Henry Colliery	96 00	1,792 14
Everhart Coal Co	...	....
East Boston Coal Co	....	604 01
John Horton	....	....
Enterprise	....	866 01
Shawnee	762 09	10,946 08
Harvey Brothers	....	183 02
Consumers Coal Co	....	....
Delaware & Hudson Canal Co	....	242 04
Chauncy	97 14	3,346 00
Other Shippers	....	2,074 11
Total Wyoming	5,456 19	112,508 16
" Manch Chunk	13,075 14	230,258 05
" Beaver Meadow	4,996 08	56,520 06
" Mahanoy	84 00	1,718 09
" Hazleton	10,118 19	172,356 06
" Upper Lehigh	933 14	11,740 17
Grand Total	34,765 14	585,102 19
Corresponding week last year	35,979 17	634,330 07
Increase	....	....
Decrease	1,214 03	49,227 08

Report of Coal Transported over Lehigh Valley Railroad

For the week ending September 12, 1868, and previously this season, compared with same time last year :

Where shipped from.	WEEK. Tons. Cwt.	PREVIOUSLY. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	11,923 07	303,735 14	315,659 01
Total Hazleton	22,842 05	754,746 15	777,589 00
Total U. Lehigh	477 12	33,361 10	33,839 02
Total B Meadow	11,301 04	296,047 04	307,348 08
Total Wyoming	7,696 16	196,260 02	203,956 18
Grand total	54,241 04	1,584,151 05	1,638,392 09
Same time last year	43,353 15	1,411,177 03	1,454,530 18
Increase	10,887 09	172,974 02	183 861 11
Decrease	.....	....	....
Forwarded East from M Chunk by r'l	54,241 04	1,584,151 05	1,638,392 09
Delivered at M. C'k and on line of r'd above that point	991 09	30,285 19	31 277 08
At Penn Haven for shipm't by canal	10,013 03	93,498 06	103,531 09
At M. Chunk for shipment by canal	5,476 10	53,696 04	59,176 14
Total by rail and canal	70,742 06	1,761,631 14	1,832,374 00
Same time last year	47,591 05	1,489,768 15	1,528,360 00
Increase	23,151 01	280,862 19	304,014 00
Decrease	....	....	....

Lehigh and Susquehanna Railroad, Week ending September 12.

WHERE FROM	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Manch Chunk	2,431 05	12,805 16
" Hazleton Region	10,927 08	211,502 09
" Upper Lehigh	3,763 06	88,753 11
" Wyoming	15,119 16	284,999 04
Grand Total	32,241 15	598,060 11
Corresponding week last year	12,941 09	365,368 13
Increase	19,300 06	232,721 18
Decrease	.....	.....
Forwarded South from Manch Chunk by rail	14,679 05	255,862 03
Delivered on line L. & S. R.R. above Manch Chunk	1,101 16	508,321 15
Delivered at Coal Port for shipment by Canal	16,460 04	291,395 03
Total	32,241 05	1,055 579 01

Cumberland Coal Trade.

By B. & O. RAILROAD.—The shipments over the Baltimore and Ohio Railroad, for the week ending Sept. 12, were as follows :

From Cumberland and Pa. Railroad, via Cumberland.	
Consolidation Company	2,835 14
Borden	1,100 01
Midland	881 17
Allegany	57 05
From George's Creek, via. Piedmont.	
George's C. & I. Company	1,909 16
Central	2,567 17
Atlantic	529 13
Savage Mt	21 13
Franklin	476 02
Piedmont	640 07
Swanton	193 10
Potomac	1,445 15
Hampshire	660 17
American	479 00
Barton	298 05
Total	13,099 12
From Eckhart R. R. C. & I. Co	2,409 07
Total	15,508 19

BY C. & O. CANAL.—There were despatched from this port, during last week, 6,692 06 tons of Coal, forwarded by the following companies :

American	1,171 09
Borden	537 05
Central	1,818 01
Consolidation	1,542 01
C. & I. Co	641 12
H. & B.	759 16
National	222 02
Total	6,692 06

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, September 18, 1868.

Schuylkill R. A., choice	$5 75@$....		Schuylkill Chestnut	4 50	....
" Ordinary	5 50	....	Lehigh W.A Lump Old Co	5 62½	...
" W. A., Lump	5 50	....	Lehigh Broken	5 57½	....
" Steamboat	5 00	....	" Egg	5 37½	....
" Broken	5 50	....	" Stove	5 62½	....
" Egg	5 60	....	" Chestnut	4 87½	....
" Stove	5 75	....	Shamokin	5 50	....
SPECIAL COALS.—DEALERS' QUOTATIONS.					
Diam'd Vein R. A., Sch'kill	7 00	....	Old Co.'s W. A. Lehigh	5 38	6 50
Locust Dale W. A., "	6 50	....	Mt Pleasant	....	....
Honey Brook " Lehigh	6 25	6 50	Buck Mountain	5 38	6 38
Harleigh " "	6 50	....	Buck Ridge W. A., Sh'kin	6 75	....
Spring M'n " "	5 25	6 25	H. Heils, E. S'klin, Lorb	5 75	....
Sugar Creek " "	6 25	6 50	New England Red Ash	6 25	....
Ashburton " "	....	....	Wyoming	6 00	6 25

Dealers in these Coals may be found in our advertising columns

At Philadelphia, September 18, 1868.

Lehigh Lump and Stmb't	5 50@....		Henry Clay, Egg & Stove	....@4	50
" Broken and Egg	5 50	....	Locust Mount Lump	4 25	4 50
" Stove	6 00	....	" Steamboat	4 50	4 75
" Chestnut	4 75	....	" Broken	4 50	4 75
Schuylkill R. A	5 25	5 60	" Egg	4 50	4 75
" Chestnut	4 00	4 25	" Stove	5 00	5 25
" W. A. Lump	4 25	4 50	Lorberry Coal	5 00	....
" Broken	4 50	4 75	Shamokin	....	....
" Egg and Stove	4 50	4 75	Franklin, (Lykens Valley)	5 50	....
Schuylkill Chestnut	4 00	4 25	Broad Top	5 00	....
Hill & Harris, Egg & Stove	....	4 80			

Scranton Coal at Elizabethport, September 18, 1868.

(Corrected weekly by D. L. & W. R. R. Co.)

Lump	$4 75@....	Egg	5 75 ....
Steamer	5 25	Stove	5 75 ....
Grate	5 50	Chestnut	4 75 ....

Prices for Pittston Coal at Newburgh, September 18, 1868.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs.	$5 10@....	Egg " " "	5 10 ....
Steamer, " " "	5 00	Stove " " "	5 35 ....
Grate " " "	5 10	Chestnut " " "	4 55 ....
Pea " " "	3 25		

70 cents additional to New York.

Lackawanna at Rondout, September 18, 1868.

Lump	$4 75@....	Egg	$5 25@....
Steamer	5 10@....	Stove	5 50 ....
Grate	5 20@....	Chestnut	4 50 ....

65 cents additional to New York.

Lehigh Coal at Elizabethport, September 18, 1868.

Lump	6 25@....	Chestnut	5 00 ....
Steamboat and Broken	5 75	Stove	6 25 ....
Egg	5 75		

Wilkesbarre Coal at Hoboken, September 18, 1868.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$5 50@....	Egg	5 75@....
Steamer	5 75	Stove	6 00 ....
Broken	5 75	Chestnut	5 25 ....

At Baltimore, September 18, 1868.

Wholesale prices to trade.		By retail, per ton of 2,240 lbs., delivered	7 00@ 7 50
Wilkesbarre by cargo or car load	$5 85@6 00	Georges C'k and Cumberland f. o. b. at Locust Point for shipping	....@ 4 75
Pittston and Plymouth	$5 75@ 6 00		
Shamokin R., or W. Ash	5 50@ 5 90		
Lykens Valley R. A	5 65@ 5 85		
Trevorton R. A	$5 25@$5 50		

At Havre de Grace, Md.

Cargo prices for shipment *south* of Patapsco river, (drawback allowed of 21c.)		Shamokin R., or W. Ash	$5 65@....
		Lykens Valley R. A	5 65@....
		Trevorton R. A	5 40@5 60
Wilkesbarre and Pittston W. Ash	$5 60@....		

At Georgetown, D. C. and Alexandria, Va.

George's Creek and Cumberland f. o. b. ..... $....@ 4 55

An advance of twenty cents per ton has recently been allowed boatmen on canal freights from Cumberland, and the price of coal correspondingly advanced

Prices of Gas Coals.

September 18, 1868.

PROVINCIAL. Duty $1 25	Coarse. Gold.	Slack. Gold.	AMERICAN	Coarse. Currency	Slack.
Block House	$1 75	$ 75	Westmoreland Co	$8 50	$8 00
Gowrie	1 75	75	Despard Coal Co	8 25	8 00
Lingan	1 75	75	Penn	8 50	8 00
Sydney	2 13¾	71¼	Newburgh Orrel Gas	8 50	8 00
Pictou	2 13¾	1 18¾	Delivered in New York.		
Little Glace Bay	1 75	1 00			
Caledonia	1 60	75			

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$ 9 50	Liverpool House Cannel	18 00@19 00
" " Cannel	14 00	" " Orrel	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD

Liverpool House Orrel, scr'd	$18@20	Livp'l House Can'l, scr'd	22 00@....

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

Rates of Freight from Newburgh

RIVER.		EASTERN.	
On "Pittston" Coal, by boats and barges of the Pennsylvania Coal Company, per ton of 2,240 lbs.		Stamford	$1 25
Troy and West Troy	$ 55	Norwalk	1 25
Albany and Greenbush	50	Bridgeport	1 25
Coeymans	45	New Haven	1 25
Coxsackie and Stuyvesant	40	New London	1 40
Hudson & Catskill	35	Norwich	1 50
Saugerties and Barrytown	35	Mystic	1 45
Rhinebeck and Rondout	30	Stonington	1 45
Po'keepsie and New Paltz Land	25	Sag Harbor	1 45
Fishkill Landing	20	Bristol	1 55
Cold Spring and West Point	20	Newport	1 55
Peekskill	40	Fall River	1 55
Haverstraw	45	Providence	1 60
Sing Sing and Nyack	50	Dighton	1 60
Tarrytown and Piermont	50	Warren	1 60
Yonkers	55	Pawtucket	1 75
The Coal must be discharged with all reasonable dispatch, at the expense of the consignee, who shall also pay wharfage on the boat. Boatmen will tend guy while unloading.		New Bedford	1 90
		Boston	2 15
		East Cambridge	2 25
		Salem	2 15
		Newburyport	2 25
		Portsmouth	2 25
		Portland	2 00

Freights on Coal Sea-borne from Port Richmond, Philadelphia.

Sept. 10, 1868.—From Philadelphia & Reading Railroad Wharves, Phila., to

Boston	2 35	2 50	New York	1 25@$1 30	
Providence	— —	2 00	Brooklyn	1 25	1 30
Lynn	2 50	— —	Pawtucket	2 15	— —
Portland	2 00	2 50	Bangor	2 50	— —
Beverly	2 50	— —	Kittery	2 50	— —
Chelsea	2 50	— —	Cohasset	2 60	— —
Charlestown	2 50	— —	East Cambridge	2 50	— —
Cambridgeport	2 50	— —	Hyannis	2 50	— —
Fall River	2 00	— —	Newberryport	2 50	— —
Hingham	2 75	— —	Salisbury	2 50	2 90
New Bedford	2 00	— —	Allen's Point	2 00	— —
Roxbury	2 50	2 75	Norwalk	1 80	— —
Salem	2 50	— —	Williamsburg	1 30	— —
Newport	2 00	— —			

From Elizabethport and Port Johnston.

Albany	$ 85@	— —	New London	$1 15	— —
Boston	2 00	— —	Newport	1 40	— —
Bridgeport	1 00	— —	New York	60	— —
Fall River	1 45	— —	Norwalk	1 00	— —
Hartford	1 50	— —	Norwich	1 35	— —
Hudson	1 00	— —	Pawtucket and towing	1 60	— —
Wareham	1 55	— —	Portland	1 90	— —
Middletown	1 25	— —	Portsmouth	2 10	— —
New Bedford	1 50	— —	Providence	1 40	— —
Newburyport	2 15	— —	Salem	1 75	— —
New Haven	1 00	— —	Augusta	2 25	— —

Rates of Transportation to Tide Water.

[BY RAILROAD.]

To Port Richmond.—(Philadelphia.)

Philadelphia and Reading R. R. from Schuylkill Haven $2 00

The following are the drawbacks allowed on all coal shipped East of New Brunswick and South of Cape Henry, until further notice :

	Drawback.	Freight.	Nett.
Lump	85	$2 00	$1 15
Steamboat	85	2 00	1 15
Broken	50	2 00	1 50
Egg	50	2 00	1 50
Stove	25	2 00	1 75
Chestnut	40	2 00	1 60

From Port Carbon, 8 cents per ton more.

To Elizabethport.

L. V. Railroad from Manch Chunk to Easton	$ 3
C. R. R., N. J., Easton to Elizabethport	1 2
Shipping Expenses at Elizabethport	2
Total	2

To Port Johnson.

L. V. R R	$ 1
C. R. R of N. J	1 9
Shipping Expenses	25
Total	2 35

To Hoboken.

L. V. R.R	81
Morris & Essex R.R	1 29
Shipping Expenses	25
Total	2 35

[BY CANAL.]

To Port Richmond.

From Schuylkill Haven to Port Richmond	$1 00
Freights and tolls by Raritan Canal	1 90
	2 90
Drawback	30
Total	2 60

To New York.

From Manch Chunk to New Brunswick, by Lehigh, Del. Div. and Del. & Raritan Canal	$ 90
Freights through	1 25
Towage	20
	2 35

To New York via Morris Canal.

Lehigh Canal	$ 34
Morris "	40
Towage	10
Freight	1 55
Total	2 39

Expenses from Manch Chunk to Jersey City for Re-shipment.

Lehigh tolls (net)	$ 34
Morris "	34
Freight	1 50
Re shipping	30
Total	2 48

Provincial Freights.

TO NEW YORK.		TO BOSTON.	
Sydney	3 50	Sydney	$2 75
Lingan	....	Lingan	2 65
Cow Bay	4 50	Cow Bay	....
Port Caldonia	4 25	Port Caldonia	3 00
Little Glace Bay	4 00	Little Glace Bay	2 75

Foreign Freights.

New Castle and Ports on Tyne	£13@15 keel		
Liverpool	12s. 6d.@15s ton.		
Australian	9 50@10 ..	Lehigh	15 50 16 00
do. Wallsend	10 00 10 50	Liverpool	13 00 .. ..
Bellingham Bay	11 00	Pittston, ton	14 50 15 00
California	7 00 9 00	Scranton	14 00 15 00
Cumberland cks	30 00 32 ..	Scotch	13 00 .. ..
do. bulk	28 00	Vancouver Island	12 50 .. ..
Chili	10 00		

Specie Market.

(Quotations of Value in Gold.)

American Gold, Old Coinage	— —	@ 4	pre.
American Half-Dollars, Old Coin	1	1½	pre.
American Quarter-Dollars, Old Coin	— —	—	par.
Portuguese Gold	par.	1	
Spanish Dollars	— 2½	3	pre.
Spanish Quarter Dollars, per oz	— —	1 19	
Spanish Quarter-Dollars, perfect, each	— —	— 22	
Mexican Dollars	— 3½	4¼	pre.
Mexican Quarter-Dollars, perfect	— —	— 24	
South American Dollars	— —	—	par.
Five Franc Pieces	— 95	— 95½	
Doubloons, Spanish	16 —	16 25	
Doubloons, Patriot	15 50	15 65	
Napoleons	3 83	3 86	
Heavy Guineas	4 95	4 98	
Sovereigns, Light and Heavy	4 85	4 87	

☞ A heavy Sovereign weighs 5 dwts. 2½ grs.

BOSTON STOCK MARKET.

(By Telegraph.)

BOSTON, Sept. 18, 1868.

Prices of stocks ranged to-day :

Calumet	58	Quincy	20
Copper Falls	18¾	Cary Improvement	10¼
Franklin	12	Isle Royal	—
Hecla	80	Water Power	15¼
Hancock	3	Bos., Hart & Erie RR	22½
Minnesota	2	Rockland	—

SAN FRANCISCO STOCK MARKET.

A Telegram from San Francisco, dated Sept. 16, quotes :

Stocks.	Bid per ft.			Stocks.	Bid per ft.		
Gould & Curry	84	@	86	Belcher	160	@	—
Savage (per share)	82	@	83	Uncle Sam	..	@	..
Chollar Potosi	132	@	138	Amador	..	@	..
Ophir	..	@	17	Imperial (per share)	94	@	95
Hale & Norcross	47	@	49	Alpha	34	@	35
Crown Point	42	@	44	Kentuck (per share)	278	@	290
Yellow Jacket	1,085	@	1,090	Cal. Steam Nav'n Co	..	@	..

San Francisco Prices of Copper Ores.

[From the Mining Press.]

SAN FRANCISCO, August 14, 1868.

We give the following as an approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent. The late reduction in price is on account of the advance of freight :

	PER TON.		PER TON.
12 per cent. Ore	$16 00	22 per cent. Ore	$43 56
13 " "	18 62	23 " "	46 45
14 " "	20 20	24 " "	49 33
15 " "	23 35	25 " "	52 22
16 " "	26 23	26 " "	55 11
17 " "	29 12	27 " "	58 00
18 " "	29 91	28 " "	60 80
19 " "	34 90	29 " "	63 77
20 " "	37 78	30 " "	66 66
21 " "	40 67	31 " "	69 55

These prices, we believe, will be found substantially correct, and can be realized at this date.

New York Imports of Metals, &c.

The following will show the imports of Metals, &c., at the port of New York from foreign ports, for the week ending Sept. 11, 1868. The quantity is given in packages, unless otherwise specified.

Metals, &c.	Quantity.	Value.		Quantity.	Value
Anvils	336	3,060	Metal Goods	209	14,747
Brass Goods	22	4,947	Nails	8	273
Bronzes	22	2,922	Needles	19	5,939
Chains & Anchors	146	5,811	Nickel	15	862
Cutlery	90	26,695	Old Metal	..	327
Gas Fixtures	1	97	Platina	..	....
Guns	56	5 337	Percussion Caps	7	1,795
Hardware	126	25,140	Saddlery	3	778
Iron, hoop, tons	48	2 237	Steel	10,890	105 508
Iron, Pig, tons	540	7,475	Spelter lb	..	....
Iron, Railroad bars	13,729	73,537	Silver Ware	1	1,332
Iron, sheet, tons	114	5,984	Tin, boxes	29,431	172,392
Iron, tubes	2,278	4,281	Tin slabs	711	7 537
Iron, other, tons	2,552	67 055	Wire	273	4,530
Lead, Pigs	4,854	24 652	Zinc, lbs	157,115	9,040

Gndit about Minerals, &c.

☞ The Hartford *Times* says : The artesian well on the Colt estate has now reached a depth of between 1 300 and 1,400 feet Work has been suspended on it during the extreme hot weather, but will now be resumed with the aid of a new steam engine of greater power than the one hitherto used. The lost drill was easily recovered. On going through a stratum of the "Old Red Sandstone" of Hugh Miller—a rock millions of years old—the drill very unexpectedly came in contact with unmistakable limestone. According to geological theories, this was not looked for in the bed of the "Old Red," but it was no doubt the effect of those enormous upheavals which, forcing the molten mass from below into and through the partially-formed rocks which then formed the earth's crust, produced those vast contortions and strange petrifactive mixtures known to geology as "metaphoric" rocks. The lowest rock yet struck in boring this well is a very dark slate.

☞ The Cheyenne *Leader* says that while grading the railroad near Rock Creek, a cut was made through a vein of the finest quality of bituminous coal ; and no seam, either, but a good eight foot vein. It cannot be long before all the coal needed on the Pacific road will be found along its route. We shall hear of some marvellous discovery from the Alkai Desert, and Death's Valley some of these days, when pioneers are found bold enough to look for anything that is not in immediate sight.

☞ Valuable gold discoveries have been made near Maniama Alaska.

AMERICAN

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☞ Mr. T. P. PEMBERTON is Editor of the Mechanical Department and Agent for the JOURNAL OF MINING.

☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," and to give the number of our Box at the Post Office, which is 5969, to ensure safe carriage. Communications intended for publication should be plainly written, and on one side of the paper only.

NEW YORK, SATURDAY, SEPTEMBER 19.

CONTENTS OF THIS NUMBER.

EDITORIALS.—Gems: Real and Artificial—The Determination of the Age of Ore-Veins—Amount of Heat Produced by Combustion—Cheap Reduction of Ores in Nevada.

CORRESPONDENCE.—From the Rocky Mountains, No. II—Copper Glance from Texas.

ORIGINAL PAPERS.—The Chemical Effects of Steam on Metallic Sulphides at a High Temperature, No. II, by Dr. Adolph Ott.

PRACTICAL LETTERS.—Ventilation of Coal Mines, No. IX., by J. W. Harden, M. E.

MANUFACTURING AND MECHANICAL NOTES. Lock-stand for Umbrellas—Photography in Boston—Deerborn's Blind Fastening—Meerschaum Pipes.

ILLUSTRATIONS.—Cameron & Co.'s "Special" Steam Pumps—Plan for Improving Oil Cups.

MINING SUMMARY.—GOLD & SILVER—Montana—Colorado—California—Nevada—Ohio—Dacotah—Oregon—Minnesota—Washington—Canada—Wales.—COPPER: Michigan—Arizona California.—IRON: Michigan.

SCIENTIFIC MEETINGS.—New York Society of Practical Engineering—American Association for the Advancement of Science.

MISCELLANY.—Tin in Olden Times—Something About Pennsylvania Slate—Remarkable Aerolite in Tennessee—Important Discovery of Granite—Blast Furnace Improvements, &c.

PATENT CLAIMS.

ANSWERS TO CORRESPONDENTS.

ON DITS ABOUT MINERALS, &c.

REVIEW OF THE IRON TRADE.

THE COAL TRADE.

MINING AND OTHER STOCKS.

METAL MARKET.

ALL SORTS.

GEMS—REAL AND ARTIFICIAL.

The literature of gems and minerals, since the fifteenth century, comprises some three hundred books, in Latin, French, German and English, to say nothing of the works which have appeared on the subject in other languages. From the very earliest times, gems and precious stones have been objects of the admiration and study of men. It is difficult to separate real gems, or jewels, from semi-gems, since the distinction between them is largely one of conventional value and use. Some authors define gems as minerals which possess a high degree of lustre and hardness, with either perfect transparency or beautiful color, and which do not occur in large masses—so that their rarity and small size make them expensive; while semi-gems possess the same physical characteristics in less perfection, and often occur semi-transparent or opaque, and in large amorphous masses. This definition, vague as it is, is not elastic enough to cover the case. But we will not find fault with it, since we are unable to suggest a better one. The ancients mingled with their notions about gems a high degree of superstition, ascribing many miraculous virtues to them. It is not wonderful that to observers unacquainted with the laws of chemistry and physics the brilliancy and hardness of the diamond, the steady fire of the ruby, the changing hues of the opal, or the strange warmth of amber, should seem to be tokens of supernatural qualities. Hence talismans, amulets, and medicines were made from precious stones. The discovery of their real composition is of comparatively modern date. As late as 1672, Hon. Robert Boyle, author of an octavo treatise called "*An Essay about the Origin and Virtues of Gems, with some conjectures about the consistence of the matter of Precious Stones*," adhered to the theory that all gems were originally formed from clear limpid water, and that they received color and other properties from their "metallic spirit," whatever that may have been. Others referred all precious stones to one peculiar ingredient, which they called the noble or precious earth. One school supposed quartz to be the principal or fundamental gem; and when we consider how many precious stones, such as rock crystal, Bohemian ruby, carnelian, citron, agate, jasper, amethyst, chalcedony, onyx, sardonyx, heliotrope, chrysoprase, and opal, are mainly varieties of quartz, we must confess that this hypothesis, in advance of accurate chemical knowledge, was tolerably acute and reasonable. Bergmann (*Sciographia regni mineralis secundum principia proxima digesti. Leipzic*, 1792,) maintained that all gems were composed of the same elements, such as alumina, silex and lime, and that the different proportions produced the different species. Modern chemistry has shown, however, that the same variety exists among these as among other products of nature. Silica, alumina and lime are, indeed, the most frequent constituents of precious stones; but some (as, for instance, zircon, emerald and chrysoberyl) contain peculiar earths, while the diamond, the most precious of gems, is simply an allotropic form of carbon. Naturally enough, the scientific solution of the ancient mystery of gems has led modern chemists to attempt by synthesis to reproduce what by analysis they able to refer to original elements, thus grappling, from a new standpoint and under more favorable auspices, with an old problem of the alchemists. Perhaps the most successful of the many experiments for the artificial production of gems have been those of Mitscherlich, Gaudin, Ebelman, Daubrée, Senarmont and Despretz. By ingenious process, sometimes of fusion, sometimes of voltaic action, sometimes of solfataric decomposition (or the action of heated vapors), and sometimes of solution and precipitation, many crystalline gems have been obtained, which could not be distinguished from those occurring in nature. The emerald, zircon, ruby spinell, quartz and garnet are among the number. These products, however, although of great scientific interest, have not become commercially valuable, on account, partly, of the small size of the stones, and partly of the fact that those persons who would buy artificial gems are quite content with the imitations produced at low prices and in great abundance by French and other manufacturers. There is a distinction to be drawn between artificial gems and artificial imitations of gems; but the public does not draw it, and there is little encouragement of a business nature for the prosecution of the attempt to reproduce exactly, by chemical synthesis, any but the most expensive and characteristic precious stones. The diamond, for instance, although it has been imitated with almost miraculous skill, still possesses physical properties which are never all present in the false stone. The chemist who shall succeed in manufacturing real diamonds of considerable size will undoubtedly make his fortune, if he keeps the secret long enough. Despretz has successfully produced minute diamonds, by the following simple contrivance: An electric current is passed through a glass cylinder, from which the air has been exhausted. At the lower end is a small cylinder of charcoal, and from above are suspended, so as not to touch the charcoal, platinum wires or foils. The current passing from the charcoal, and overleaping the break in continuity, to reach the platinum, shows small, very brilliant sparks of a reddish-violet color. These sparks are minute particles of heated carbon, mechanically detached and carried over by the rush of the electric stream. The carbon is transformed by this agency in a very different manner from that exhibited in ordinary combustion, where it unites with oxygen to form a gaseous compound. In this case, it is still carbon, after it has been deposited on the platinum foil, but its condition is now crystalline. After the process has been continued about one month, the platinum is covered with a black layer of charcoal, which is seen under the microscope to consist of innumerable small octahedra, like those of the diamond. Most of these crystals are black, but some are free from color and extremely brilliant. As they are formed in a vacuum, it is evident that they must be diamonds. This experiment throws a shade of doubt over the theory which some have held, that the diamond, as found in nature, is the result of precipitation from a solution. No method has yet been discovered by which pure carbon can be dissolved in a liquid and then precipitated, but it is still possible that the diamond may be thus formed.

Much more importance, commercially, than the production of artificial gems is the manufacture of imitations, which is carried on to a surprising extent, especially in France. Dr. Feuchtwanger, one of the best living authorities on the subject, gives the following rules by which the false stones may be distinguished from the real ones. It is often necessary to apply all these tests before acquiring absolute certainty. They are as follows: (1.) The hardness, which may be tested on the grinding machine, or with a real onyx, which scratches paste. (2.) A good magnifying glass will often detect small air-bubbles in the paste. (3.) The cold touch will never remain for any length of time on pastes, as it will on the real gems. The breath, on the other hand, remains much longer on the pastes, on account of their bad conducting power. (4.) Specific gravity and electricity may likewise indicate the difference; but they are not to be depended upon alone. Real gems are said to retain their electricity after friction from six to thirty-two hours, while artificial imitations lose it in forty to sixty minutes. Dr. L. Feuchtwanger's work, "*A Popular Treatise on Gems*," a third and greatly enlarged edition of which has recently been issued, contains, in small compass, an extraordinary amount of information on this whole subject, and constitutes an admirable manual for the student, the expert and the amateur. We have not hesitated to use it freely in the compilation of this article.

THE DETERMINATION OF THE AGE OF ORE-VEINS.

This highly interesting problem cannot of course be solved absolutely, but oftentimes it is of great moment in a scientific, if not, always, in a practical point of view, to determine the relative age of ore deposits. No one can form even an approximate idea of the age, in and for itself, of any ore-bearing veins. It must remain only a matter of conjecture, whether the age of such a deposit is to be counted in millions, billions, or trillions of years. But, on the other hand, it is possible to arrive at the relative age of many such deposits. To the eye of the careful investigator, a glance will often suffice to indicate whether a certain vein or group of veins is older or younger than any given geological formation.

Among the few who have contributed to the scanty literature extant upon this interesting topic, none have given expression to clearer views than VON COTTA, of Freiberg, nor indeed do we think there are any who have had better opportunities for, or been more patient in their investigations. His remarks in regard to this important matter run substantially as follows: "Every vein, and consequently every ore-bearing vein, has necessarily a later origin than the rock through which it cuts, and if it occasionally cuts other veins, it is, of course, of later origin than these. In so far as this, their relative age can be easily determined. But on the contrary, it is only very seldom that, to a certain extent, their true age can be determined; that is, it is only exceptionally the case, that one can refer the time of their formation back to that of well-determined sedimentary formations. This is, indeed, only possible when peculiar conditions are found connected with the concurrence in time of their origin. It is, in fact, generally difficult to determine, accurately, whether ore-veins are older than certain rocks or formations which appear in their neighborhood, but are not traversed by them. This is, indeed, with hardly an exception, only possible when the veins are found with a deposit of such rocks resting immediately upon them, or when they are cut off in their course without, at any point, penetrating into the adjacent rocks, or again when the rocks or formations themselves contain fragments or pebbles that evidently belonged, originally, to the ore-veins."

But then, after all, the question at large, remains even yet unanswered, how much older are these veins than such rocks, or formations? A chronological determination is, in fact, only satisfactory, when, perhaps, it can be shown in the above way, that the veins were formed in the space of time that elapsed between the origin of two rocks or formations well known to have been formed one after the other in quick succession. There is another indirect method of determining, sometimes, the age of veins, though it does not put the question beyond all doubt. This method consists in recognizing a connection as regards their origin with certain eruptive rocks. It appears, as, particularly, FOURNET has shown, that ore-veins can very frequently be co-ordinated with the eruptive rocks of the vicinity so as to compel us to draw the inference that the upheaval of the latter gave rise to the formation of them.

As regards the age of ore-bearing veins in general, it may be remarked that it has been sometimes supposed that veins of ore generally, or, at least, certain kinds, forms, or combinations of them were formed only in well-known geological periods. There is, of course, no doubt as regards the fact that ore-veins, generally, are more frequently found between old, than new rocks or formations. In the newest deposits and eruptive rocks, they are indeed but seldom found; in the oldest, on the contrary, the most frequently of all, and that too, in such a way that we can well say, we find, generally speaking, that the older rocks and formations are; the more frequently we find them cut by ore-bearing veins.

AMOUNT OF HEAT PRODUCED BY COMBUSTION.

We gave upon page 72 an explanation of what is understood by the "Unit of Heat," and treated thereafter successively of the subjects of "Specific and Latent Heat," (see pages 152 and 168,) as placed in a clear light, by the most fortunate adoption of such a unit. But the application of this unit to the results of the combustion of different substances, is still more important, settling as it does, in the most rigorous manner, the comparative value of different kinds of fuel. This is a subject of the utmost importance in an age when steam power is applied in so many and diverse directions, a conversion, it would seem, in point of fact, of heat into motion, showing thereby, that this caloric hidden in the fuel, perhaps better said, in the oxygen of the air, is identical with potential force, and is only changed into actual power by the intermediate use of evaporating water, expanding air, etc. This connects our unit of heat directly with the unit of power mentioned upon page 72, of which relation we will speak hereafter in a separate article.

Combustion is nothing but a chemical process, in most cases, a combination of the combustible elements in the so-called fuel with the ogygen of the air, thereby converting hydrogen into HO or water; carbon into CO, carbonic oxid; or CO_2 carbonic acid; sulphur into SO_2 or sulphurous acid; phosphorus into PO_5 or phosphoric acid; sodium into Na O or soda; magnesium into Mn O or magnesia; iron into Fe O or oxid of iron, etc. In every case a certain degree of heat is produced varying with the nature of the substance, but, however, very nearly proportional to the amount of oxygen consumed; that is, of oxygen combined with the fuel in the formation of the new product. We find, for instance, that the combustion of one pound of carbon develops almost as much heat as the combustion of three pounds of sulphur, but chemistry proves, however, that three pounds of sulphur, converted into sulphurous acid, by the process of burning, has consumed or combined with no more oxygen than the *one* pound of carbon. The combustion of one pound of carbon, however, will produce only one-fourth of the amount of heat produced by that of one pound of hydrogen; but, again, chemistry shows us that in the combustion of three pounds of carbon the latter will combine with almost the same amount of oxygen as one pound of hydrogen; namely, with eight pounds of oxygen.

The amount of oxygen thus combining with the fuel in question, gives us therefore an approximate answer to the question concerning the comparative value of different kinds of fuel, and this, together with some other reasons, makes it probable that the heat developed during combustion, may be considered

as well, hidden in the oxygen, as in the fuel. We do not say it is latent in either of them, since we have learned now, to use that word in another signification. It was an old theory that latent heat was expelled during combustion, but this theory was exploded as soon as it was proved that in many cases, the products of combustion possess more latent heat than the original substances before the combustion took place. This could not, of course, have been the case, if this latent heat had been given out during the combustion.

The origin of the heat of combustion is, therefore, still one of the mysteries of physics. We appear, however, to be now upon the threshold of the solution of the problem, and that, by means of the latest discoveries in regard to the relations existing between heat and motion.

Practical experiments with different kinds of fuel have shown that the estimation of the heat produced by the amount of oxygen theoretically consumed during this combustion is not strictly correct. The following table gives the units of heat produced by the combustion of one pound of different substances, obtained by practical trial, and also the amount of water each can convert into steam:

Substance burned.	Units of heat produced.	Pounds of water converted into steam.
Hydrogen ..... H	56,000	56
Marsh gas..... C_2H_4	23,500	23.2
Petroleum..... C_nH_{n+2}	22,000	22
Paraffin..... $C_{40}H_{42}$	21,600	21.6
Olefiant gas..... C_4H_4	21,350	21.35
Oil of turpentine. $C_{20}H_{16}$	20,000	20
Beeswax.....	19,000	19
Spermaceti.....	18.000	18 8
Stearic acid.... $C_{36}H_{36}O_4$	17,500	17.5
Ether..... C_4H_5O	16,000	11
Wood charcoal..	14,500	14.5
Gas coke.....	14,450	14 45
Anthracite coal...	14.220	14.2
Bituminous coal..	13,500	13.5
Alcohol..... $C_4H_6O_2$	13,000	13
Sulphur..... S	3,500	3.5

CHEAP REDUCTION OF ORES IN NEVADA.

In the Mining Summary Department of to-day's issue under the head of "Nevada," in reference to work going on upon the Comstock Lode, our readers will find a short article clipped from the Virginia City *Trespass*, that speaks of the efficiency of the Sierra Nevada mill in the most flattering terms. The report in regard to the great success attending the working of the mill comes to us from such a trustworthy source that we feel ourselves bound to treat it respectfully, if not to give it our usual amount of confidence, until—should it ever occur—we have satisfactory evidence that there is a mistake somewhere. We have, all along, understood that the cost of mining, milling, etc., on the Comstock Lode amounted to some fifteen or eighteen dollars per ton of rock, but we find in the article in question a statement to the effect that the arrangement of the machinery for hoisting and transporting ores is so complete, and the working of the milling apparatus so perfect, that ores can be mined and milled at the unprecedentedly low rate of one dollar and forty-two cents per ton. The most we can say in comment thereupon is that it seems too good to be true. Admit all that is said, and notwithstanding the very high rates of labor, the Nevada people are beginning to work ores at lower rates than they can be treated in the old smelting works of the European continent, where labor is worth but thirty or forty cents a day. If the success claimed for this new mill is to be followed by similar favorable results on the part of others in that region, there need be no further thought as regards the disposal of low grade ores or tailings. We should be glad to get a verification of what we have read.

Correction.

In our leader of last week, through a misinterpretation on the part of the printer, the heading of the third column in the numerical table was made to read: "Specific gravity of air-vapor," which is, of course, nonsense. It should have read: "Specific gravity of vapor—air equal to one."

Answers to Correspondents.

To M. N. K., of New York.—In the smelting of pyritous copper ores in a reverberatory furnace, arsenic and antimony, if present, pass almost wholly into the matt. In case a blast furnace is used these elements, so injurious to copper, can be in part volatilized. To effect this it is very important to vary the form of the furnace, the pressure and quantity of air thrown in through the tuyere, and the rapidity of the descent of the charge, in accordance with the nature of the minerals treated.

N. Barber, of Philadelphia, Pa. You can gild white satin by wetting it with a solution of terchloride of gold, and then exposing it to the action of sulphurous acid gas; the silk will be covered with a coating of minute particles of gold in a very short space of time. The sulphurous acid gas may be obtained by burning the sulphur under a jar and confining the vapor.

A. A., of Marquette, Michigan. The tests of copper afford results which you cannot easily mistake. Dilute solutions of this metal will present a blue color, which is rendered further apparent by evaporating upon a bit of white porcelain. The addition of ammonia causes the production of an intense blue color.

B. H., of Va. The peculiarity in the iron which you mention is called "red-shortness," and is apparent when the metal is heated, although the iron may be tough when cold; this defect is generally attributed to the presence of sulphur. The difficulty in welding may, perhaps, be caused by the presence of arsenic.

R. L. S., of Idaho. Before the blowpipe, upon coal, chloride of copper melts. It colors the outer end of the flame azure blue, while the extreme point shows green. Two coatings are formed—the one, brown; the other, grayish white. The chloride is reduced to a copper corn which is surrounded with a little slag.

To Enquirer, St. Louis.—In accordance with the terms of the old Roman law, mines belonged, without any restriction whatever, to the owner of the land within the limits of which they were found. He who discovered them could lay no claim thereunto, unless they were upon deserted or abandoned lands.

M. P. G., of Pennsylvania. There exists, of course, no kind of a doubt, as regards the fact that all true beds of ore were originally produced by means of deposition, that is a chemical or mechanical precipitation out of water. For this we have the authority of eminent geologists.

J. J. Atkins, of New York City. It is stated that steel alloyed with twenty per cent. of tungsten or wolfran, produces a mixture which, while it retains all the general qualities of steel, is so excessively hard that tools made of it will cut, without difficulty, the hardest cast steel.

C. P., of Paterson, N. J. A solder for aluminum with dentists, and one objection raised to the solders which you mention is the generation of galvanic currents.

Correspondence.

[To insure insertion of correspondence in our columns, the full name and address of the writer must be given.]

Copper Glance from Texas.

Geological Bureau, U. S. Gen. Land Office,
Washington, D. C., Sept. 11, 1868.

Editor American Journal of Mining:

A very interesting specimen of copper glance was received at this office from Archer county, Texas, containing 55.44 per cent. of copper, a small quantity of malachite, oxide of iron and carbonaceous matter. This specimen is of particular interest, because it is a pseudomorph after some woody or vegetable substance, and closely resembles similar pseudomorphs found in the "Hupferschiefer" stratum of the Permian formation at Frankenburg, in Hessia, and in other European localities. It is reported to exist in inexhaustible quantities in the above-named county, and also in several of the Waschita mountain counties. Full information in regard to the manner of its occurrence, together with a full suit of the accompanying rocks, fossils, etc., are daily expected.

A. R. Roessler, U. S. Geologist.

From the Rocky Mountains.—No. II.

Editor American Journal of Mining:

The valley of the Platte, which at first is twenty miles wide, keeps gradually contracting and getting more barren. At Julesburg the railroad leaves the valley, and ascends the plateau, between the two branches of the Platte. The grass here becomes thin and dried up. Buffalo used to be abundant along the Platte valley, but have retreated to twenty miles on each side of the railroad, and now the only game to be seen is antelopes. Prairie dogs are plentiful. These little fellows were supposed to be among the utterly useless products of nature, but the ingenious gold-diggers turn their burrowing propensities to account lately by panning out the earth around the holes, and then judging if there is a prospect of attaining a paying stratum of earth underneath. The country from Julesburg to Cheyenne seems to be the elysium of prairie dogs, judging from the number of their towns, though it is not likely to become so favorite a habitation for any other class of animals.

The whites have been twice massacred at Julesburg by the Indians, but there is no fear of its happening again. The very barren land continues from this point to Cheyenne; after a while bluffs and rocks indicate an approach to the mountains, and at last the Black Hills are seen in front, and to the south the Rocky Mountains—part of the same chain, but not called alike by the settlers. The distinction of hills and mountains seems very correct, as the former lie so very low as to be barely seen from about Cheyenne; and this induced the running of the Pacific line through there, seemingly with good reason, though the people of Colorado think it ought to have been made through the pass at Laporte, or further south up the course of Clear Creek. They complain that passengers along the line cannot now enjoy any mountain scenery worth seeing. But this is a small inducement for railroad corporations, who, as they are generally supposed not to have souls, are also not afflicted with a passion for the picturesque.

Long's Peak some 14,000 feet high rises in front and Pike's Peak about the same height lies some 150 miles south. The main range between these two peaks is some 12,000 feet above the sea, and is of a horse shoe form, resting at each extremity on these two mountains. Patches of snow are to be seen along the highest part of the whole range, but in this month of August it does not cover the entire surface of any part, and these patches are the remains of the deep snow drifts of winter. The view of the Rocky Mountains from the Plain is not at all imposing, owing to the circumstance of the main range lying back some twenty or thirty miles from the base. Cheyenne is a place evidently built up in a hurry, and a great business was done there while it was the terminus of the railroad; but now decay is evident and many of the traders have become bankrupt. This was a rendezvous for the gamblers and loose characters of the Union, and it has even still an unenviable notoriety, although most of these have moved west. The large sums of money spent by the railway company and freedom from the restraint of law, being the attractive force; it must not be supposed that the inhabitants of Denver or the mining regions partake of this character. They seemed to me as orderly a people as any East. The 110 miles from Cheyenne to Denver are travelled by stage in about twenty-four hours. Slow travelling, but still slower in the mountains. The land is barren, in appearance at least, though good crops are raised by the aid of irrigation, which is done with great facility owing to the numerous and copious mountain streams which pour down from the melting snow-banks. The mineral nature of the mountains through which they run, is evident from the sand and pebbles brought down by these torrents. The country round Denver is rather sandy, and almost entirely unproductive when unwatered; but a ditch with a good supply of water has been carried round the hills over the town and supplies an abundance for the ground at present under cultivation; A stream is turned on through each street at certain hours of the day for the purpose of watering the gardens. This is the only district of the country, I believe, in which irrigation is habitually practised. Indeed it is needless in most of the settled States. Denver is a place of eight or ten thousand inhabitants. About half of it is built of brick and half of wood, and is fully equal to any town of its size in the East. Though not a mining place itself it serves as a center and point of deposit and distribution for the products and articles of consumption of the different mining towns scattered through the mountains, and has what they call a mint, but which is really an assay office. It was built on the Platte and is about ten or fifteen miles from the base of the mountains. A branch railroad from Cheyenne has been talked of. The capitalists of Denver ought to build it themselves, as it would be of incalculable benefit to the town, and the cost would be trifling as it is all level ground and the Union Pacific Railroad would furnish all the rolling stock. It might be continued to Golden City, at the foot of the mountains, but from there up to the mines it is very unlikely that a locomotive line could be made to pay as the expense of carrying it through the mountains would be enormous. It strikes me that should the mountain men ever wish for railway communication, the best and cheapest system would be that of gravity roads, as practised in the coal districts of Pennsylvania. The rails required are very light, curves of almost any radius are available, and thus heavy works are avoided as the track can wind about anywhere through the mountains. Some fifty or sixty Ute Indians were encamped on the outskirts of Denver, and enlivened the streets with their picturesque costumes. The Utes are a mountain tribe and occupy most of this part of the Rocky Mountains as well as the Territory of Utah, and are generally at peace with the whites, mainly, it is said, owing to the influence Kit Carson had over them; but they are always hostile to the Indians of the Plains, the Arapahoes, the Cheyennes, and the Sioux. A quarrel occurred a few days before between them and the first-named tribe outside the town as they met by chance, and Denver being a sort of neutral ground between the two, coming to purchase goods there, the difficulty was only prevented from ending in bloodshed by the interference of the citizens. Public opinion in this part of the country is entirely in favor of exterminating the Indians, but fortunately this spirit is checked by the United States Government, notwithstanding which the conduct of the settlers has been sometimes sufficiently barbarous, and I think that attacks on the whites by the Indians originate more in the injustice of the former than in the cruelty of the latter. It seems hard that the original possessors of the soil should be exterminated because, when they find the game on which they subsisted driven off, they may steal some cattle; or when in revenge for lawless conduct towards them, they sometimes kill a straggling white man. I was told that many of the murders attributed to the Indians were committed by the Mormons, on persons who might be dangerous to them.

D. Coghlan.

Original Papers.

PREPARED FOR THE AMERICAN JOURNAL OF MINING.

THE CHEMICAL EFFECT OF STEAM ON METALLIC SULPHIDES AT A HIGH TEMPERATURE.

NUMBER TWO.

BY DR. ADOLF OTT.

In what follows we have only to give a general account of Regnault's experiments. We will now treat exclusively of those sulphides, which are to be especially considered in the treatment of ores and metallurgical products.

Sulphide of copper, when subjected in a tube of green glass, and in a glowing state, to the action of steam, generated some sulphide of hydrogen; it was, however, decomposed but very little.

When brought to a white heat in a porcelain tube, it was acted upon energetically by the steam; much hydrogen was formed, and some drops of sulphur were set free. The sulphide of copper was thereby converted into metallic copper. The generation of hydrogen could only have resulted from the decomposition by the sulphide of hydrogen by the heat, which perhaps takes place easier in the *statu nascenti* than otherwise. (In a glowing porcelain tube, sulphide of hydrogen is decomposed into sulphur and pure hydrogen gas. *Cluzel, Annales de Chimie*, 84, 166.)

Sulphide of iron decomposed steam with a good deal more energy than the sulphide of copper; a considerable amount of hydrogen was disengaged, and magnetic oxide was left behind. There was a mixture of hydrogen and sulphide of hydrogen generated. The hydrogen originated in this experiment from the decomposition of the water by the protoxide of iron, which is formed at the first stage of the chemical reaction. Zinc blende, or, in other words, the natural sulphide of zinc, when heated in a glass tube in a current of steam, gave rise to the formation of a small amount of sulphide of hydrogen, but was, otherwise, but little changed.

In a porcelain tube, and at a higher heat, decomposition took place with more ease; silky bunches of oxide of zinc were found condensed at the upper end of the tube, and the blende was found to be almost completely desulphurized.

Galena, or sulphide of lead, when exposed to the action of steam at a cherry red heat, underwent scarcely no change at all. Sulphide of hydrogen was, however, generated at a higher heat, and the water in the pneumatic vessel through which the gases were conducted, presented a somewhat milky appearance. The front part of the tube was entirely covered with small, brilliant, cubic crystals of galena, which were volatilized and carried away by the steam. In order to effect this latter action, the hydrogen of the steam combined with the sulphur, forming sulphide of hydrogen, and its oxygen combined with the lead. But, in this experiment, the oxide of lead reacts upon the metallic sulphide the instant it is formed; metallic lead and sulphurous acid are the products of the chemical reaction. This sulphurous acid now reacts on the sulphuretted hydrogen, thereby occasioning a precipitate of sulphur, which causes the water in the vessel to become milky.

Cinnabar, or sulphide of mercury, when volatilized in a current of steam, decomposed the latter with some energy; a good deal of sulphuretted hydrogen was generated, and the volatilized substance turned black. This black residue contained globules of mercury. The products of this reaction

corresponded, therefore, to those in the experiment with the galena.

Silverglance, or sulphide of silver, when subjected to the same treatment, likewise decomposed the steam with nearly as much energy as the galena. The generation of sulphuretted hydrogen was very perceptible, and after the completion of the process the sulphide of silver, which was found melted in the tube, was coated with a film of metallic silver.

Sulphide of antimony, when heated in a current of steam, caused an abundant generation of sulphide of hydrogen; at the same time, a large amount of an orange yellow-colored substance was condensed in the receiver, very similar to the sulphide of antimony which is obtained in the wet way. It consisted, however, of sulphide of antimony and antimonious acid. The melted sulphide of antimony in the tube was also coated on its edges with a similar substance.

The sulphide of antimony, therefore, decomposes steam with tolerable energy; sulphuretted hydrogen is generated, and an oxysulphuret is formed, having the formula $Sb\,O^3 + 2\,Sb\,S_3$, which is volatilized as soon as it is formed. This oxysulphuret is, moreover, formed only when the sulphide of antimony is present in large quantities. It decomposes the steam at even a cherry red heat, and would, in this manner, probably, be entirely converted into antimonious acid.

Sulphide of arsenic behaves like the sulphide of antimony. It decomposes steam easily at a cherry red heat, and gives rise to the formation of oxysulphurets, which, however, in consequence of the great volatility of the metallic sulphide, are always mixed with a considerable quantity of the latter.

From the foregoing results, REGNAULT concludes as follows: "Concerning the application of steam in metallurgical processes for the purpose of separating the sulphur in roasting, the above-mentioned experiments prove, to a certain extent, that there is nothing to be expected from it. The atmospheric air is by far a more energetically desulphurizing agent, as might have been predicted *a priori* without much ado."

Experiments of BISCHOF, made solely for the purpose of explaining some changes and transformations in the gangue masses, have established the fact that sulphides of lead and silver, when exposed to a high temperature, undergo decomposition by steam, sulphuretted hydrogen and sulphurous acid gases being generated. These gases are volatilized, and the metal left behind in tree, moss, and thread-like forms.

Scientific Meetings.

THE NEW YORK SOCIETY FOR PRACTICAL ENGINEERING.

The above-named society held its regular fortnightly meeting on Tuesday evening, Sept. 15th, at room No. 24 Cooper Union Building, the President, JAMES A. WHITNEY, in the chair, W. B. HARRISON, Secretary. The regular subject before the meeting was, "Elevated Railways for City Travel," and an exhaustive paper on this topic was read by Mr. C. WILLIAMS, M. E.

The writer considered at some length the various plans proposed for the relief of Broadway, South, West and other streets, including the underground, the elevated railway through blocks, on arches, the single column elevated railway, the suspension railway, and the so-called atmospheric plans. With regard to the first-named system, the writer reiterated the well-known objections of the great expense of construction and length of time required to complete the work, the late improvement of arching being admitted, however, to be capable of some reduction in cost. The same objections were stated to have nearly equal weight with reference to the elevated railway through blocks; but those on arches, whether on one, two or three tiers, were believed to possess more merit, although essentially cumbersome and obstructive in their nature and comparatively costly. The single column plan, of which an example is seen in the Greenwich street line, offers less obstruction to the street, and is less expensive than the other plans brought prominently before the public, but it is believed by many that its construction is not so strong and durable as be required in structures of this kind, and that the method of applying the motive power must sooner or later give way to some more practical method of propulsion.

The so-called atmospheric plans were recommended as a means for the transmission of freight, but much doubt was expressed as to their practicability in the conveyance of passengers. The writer concluded by suggesting a plan of elevated railway, devised by himself, for which he claimed great economy of material and consequent cheapness, combined with the greater adaptation to the requirements of the public. The essential features of this plan consist in a flooring, supported upon truss girders, and accessible by suitable stairways; this flooring carries the rails upon which the cars move, propelled by any suitable power; the flooring may be composed of glass grating, to admit light to the street below, and is left open over the sidewalks to prevent interfering with light and proper ventilation.

The committee on Water Meters reported that they had examined the Worthington, Hawley, Heaton, Wagner, and Balanced meters, together with drawings of the Star and Woodbury meters, and would continue their investigations in this class of mechanism.

Mr. JAMES HARRISON exhibited a model of an apparatus designed to clear the streets of snow in winter, and which, by suitable carrying mechanism, conveys the snow to a heated platform as the machine moves along, and thus melts the snow.

The Society adjourned to meet again at the same time and place on the evening of Tuesday, the 29th inst., when the "Filtration on water for industrial and household purposes will constitute the subject of discussion.

THE ANTIQUITY OF MAN AS DISCUSSED AT THE MEETING OF THE AMERICAN ASSOCIATION.

Several very interesting papers upon the antiquity of man in North America were presented at the recent meeting of the American Association at Chicago, and a very animated and somewhat prolonged discussion of the subject resulted. As this has not been fully and satisfactorily reported in the daily press of the Eastern cities, we have taken pains to procure the following carefully prepared digest or report.

The first paper read on the subject was by Col. WHITTLESEY, of Cleveland, Ohio, who gave a detailed account of the various discoveries of ancient human relics in North America, citing particularly the ancient earth-works which abound in Ohio and the ancient forts along the rivers which flow from the south into Lakes Erie and Ontario, and noting the remains peculiar to each. The difference in the modes of burial indicates clearly, he thought, that the mound builders were a people distinct from the North American Indians. The most ancient interments were made at great depths on charcoal hearths, in rude inclosures of wood or stone, with copper ornaments and implements. Flint knives and arrow-heads are rare in the sepulchres of the mound builders, but stone axes are not uncommon. In Indian graves both knives and arrow-heads are numerous, but stone implements, except pipes, are rare.

The mound builders wrought the copper mines of Lake Superior to obtain copper for tools. He estimated the period of the mound builders at not less than 1,000 years ago, probably 2,000 years ago.

Col. J. W. FOSTER also read a *résumé* of the discoveries going to show the great antiquity of man in North America. He said that recent discoveries in both hemispheres clearly show that the old opinions as to the age of existing races are untenable. He cited the discovery of a polished syenite plummet at a depth of fifty feet from the surface in the San Joaquin Valley, California, and the discovery of a rude kind of matting, at a considerable depth, on the island of Petit Anse, Louisiana, resorted to in former times, as now, for salt. He instituted a parallel between the evidences of the antiquity of man in the two hemispheres. The discoveries thus far made indicate the existence of man upon the earth far beyond the ordinary period allowed, and show that he has been a witness of great physical changes.

Prof. WM P. BLAKE, of California, stated that evidences of an ancient race or races of men are abundant in California. The miners in their washing operations frequently unearth spear and arrow heads and other implements of stone, showing great skill in the art of fashioning such hard material, and which are clearly not the work of any race of which we now have any knowledge by contact or tradition. The stone relics are most abundant in the central counties of the State, particularly near Columbia and Sonora, in Tuolumne county. This is a region, also, in which the remains of the extinct mammalia, the mammoth, and the mastodon occur, and it is believed that they occur in close association with the remains of human art. The most interesting locality was stated to be Table mountain, a noted feature in the topography of California, having a long flat summit formed of lava. This mountain was described as occupying, or resting, in the bed or valley of an ancient river through which torrents of water formerly flowed and made a rich deposit of gold in the coarse river drift. By some volcanic eruption this valley was filled with volcanic tufa, sand, gravel and clay; and a stream of lava flowed over the whole, extending from one side of the valley to the other, and throwing the stream out of its ancient course. The result was that the river wore into the sides of the mountains, and gradually cut them away so as to form new channels or valleys on either side, leaving the old deposit capped with lava standing alone in the centre. The lava at the top is black and hard, and in places is over 100 feet in thickness, while the elevation above the adjoining and more recent valleys is from 1,000 to 1,500 feet or more, this being the amount of erosion or cutting out by the streams which now exist. The ancient channel is thus left high above the valleys.

In order to obtain the gold deposited in this ancient channel, under the lava, the miners first sink a trial or prospecting shaft from the surface to the bed rock, near where the lowest depression is supposed to be. If the deposit proves to be sufficiently rich, a tunnel is commenced on the side of the mountain at an elevation which will tap the deposit at the lowest point, and thus provide an outlet for the water and for the gravel containing the gold. It is in this gravel, under the lava, that stone implements are reported to have been found, together with the remains of the mammoth and mastodon.

Prof. BLAKE then showed drawings which he had made of a collection of stone implements belonging to Dr. SNELL, of Sonora, who states that he obtained them from the miners, and that they were taken out from various tunnels extending under the Table mountain. The statement of locality for some of them was given with great precision by Dr. SNELL. None of the articles were obtained under the mountain by Prof. BLAKE personally, the evidence of their occurrence there was the statements of Dr. SNELL. These implements are made of hard, tough stones, chiefly of metamorphic slate, and of a jaspery rock, and also of steatite, the last-named material having been worked into a kind of rude shovel or dish with a projecting handle, evidently intended to push into the fire upon the coals. There were also spear and arrow-heads, and some peculiar articles, the use of which is not known.

Other evidences of the extreme antiquity of man had been brought to his notice In 1854, two human molar teeth were presented to him as great curiosities, having been found in gold mining in the gravel on the bed-rock fifteen feet below the surface.

A portion of a human skull had also been submitted to him with the assurance that it was taken out of the pay dirt at the inner end of a tunnel some 250 feet long, extending under a deposit some 200 feet deep. It was but little decomposed, the surfaces were clean and smooth, but the sutures were rubbed down, and the spaces were tightly filled with sand and gravel, exactly as if the bone had been rolled and tumbled in the drift. The conditions could hardly have been produced artificially or designedly. He was assured that a number of persons were ready to vouch for the authenticity of the discovery.

Prof. J. D. WHITNEY then read his paper on "The Fossil Human Skull of Calaveras county, California."

The Professor stated that the portion of the skull exhibited was found in February, 1866, on the claim of MATTESON & Co., in Bald Mountain, at 130 feet below the surface, beneath the lava and in close proximity to petrified oak. The parietal and part of the occipital regions are gone. It was forwarded June 29, 1866, to the office of the State Geological Survey. When taken it was embedded in a strong material and a Mr. SCRIBNER, agent of Wells, Fargo & Co.'s Express, to whom it was first delivered, was not then certain what it was. Mr. MATTESON supposed it to be a part of the root of a tree. It was subsequently cleaned somewhat when it was found that it was a human skull. It was then given to a Dr. JONES of that vicinity, from whom the Professor received it. The lower jaw, the parietal region and nearly all the occipital and part of the right half of the base were missing. The frontal bone was nearly entire. It was then embedded in ferruginous earth, pebbles, metamorphic rock and calcareous tufa. There were fragments of other bones in the skull and about it, and the material filled the left temporal fossæ, concealing the whole of the jaw and all the lower part. This incrustation of calcareous tufa appears to have covered the whole of the skull when found. A short time since (a few weeks only) this matter was carefully chiselled off and it remained as now shown. On exposing the jaw it was ascertained that the skull was of an old person, as the teeth, with the exception of a single root of a molar, are entirely gone. There were removed from and around it two metatarsal bones, the lower end of a left fibula, part of the ulna and of a sternum bone which might have belonged to the original owner of the skull. There was also a fragment of a human tibia, too small to belong to the man who once had the skull. There was also a snail shell in the skull, and a circular piece of shell having a hole drilled through the centre, which might once have served as an ornament. Several small pieces of charcoal were also found.

The anatomical peculiarities of the skull are that the frontal region is large. It is uncertain whether the head was long or broad. The face was deformed, the left orbit being smaller than that of the right side, the left cheek being also higher than the right. The ridges over the orbit are strongly marked. The lower border of the opening of the nostrils is not large. There is no conclusion to be drawn from the single skull as to the race that it belonged to, because it is not to be ascertained that it is a representative skull. It appears, however, that, as a skull, it presents no signs of having belonged to a race inferior to any that lives in California, and, so as far as it differs in dimensions from other types found in California, it approaches the Esquimaux.

He then went into an examination of the question of the authenticity of the skull as one found where it was claimed to have been discovered. The locality had been visited by himself, by his assistants, as well as by others, and all the facts surrounding the place as well as the frequent examination of the parties who are cognizant of the facts of the finding, all concur in their testimony, without variation from the original. The next evidence of authenticity is in the skull itself; an inspection of the ground in the shaft, however, had not been made, because it has, since the matter was brought to the Professor's notice, been constantly filled with water. The appearance of the skull, when received by him, showed that it was not an ordinary skull, picked up at random, in order to cheat a curious antiquarian. There is evidence of violence not recent in the manner of the fracture, it being in the strongest part and the presence of the other bones seem to show that it was swept with many other bones down a shallow but violent stream, where it was exposed to the boulders of the bed. In its passage, it was smashed, and at last it came to rest in a position where water charged with calcareous matter had access to it, on a base of auriferous gravel.

The skull was taken from the bottom of a shaft, in which were found five beds of lava and five beds of gravel interposed between the lava. The immediate place of the find was at the bottom of the eighth bed, which is of gravel. It was found at the side of the channel with a mass of drift wood, as if all had been deposited by an eddy of the stream which was afterwards covered by the rush of gravel, of which bed eight is formed. He thought the evidence sufficient to establish an authentic find.

Assuming the authenticity of the find, he proceeded to consider the inferences that could be drawn from the fact of the occurrence of the skull at the position indicated. He examined under this head the geological structure of the vicinity, the Table Rock and Bald's Mountain, and regarded the former as the more ancient of the two, dating back as far as the Miocene, or Middle Tertiary, while Bald Mountain appeared to belong to the Pliocene, or Post-pliocence epoch. The volcanic outflows and disturbances appeared to have ceased at the close of the Tertiary epoch, and the basalt of Table Mountain at the close of the Miocene period. The deposits of volcanic ashes marked the later stages of volcanic activity. All these deposits were believed to be prior to the glacial epoch. He cited at length the various fossil bones and teeth which had been found in the deposits, and mentioned the remains of plants, all of which indicated an age as great as the Miocene for Table Mountain.

He thought there never had been, or would be found implements of human art or human remains under the basaltic formation of Table Mountain, and in regard to implements exhibited by Prof. BLAKE as having been there found by Dr. SNELL, who had informed him that they were not so found. He thought, however, there was abundant evidence that man had existed cotemporaneously with the mastodon, in California. He believed the present skull belonged to the pliocene or the post-pliocene age. The teeth of the rhinoceros had been found near it. In regard to the skull said by Prof. BLAKE to have been found, he thought it was not genuine, as the Professor had not followed it up, and because it had not been spoken of until the Calaveras skull had been found. From his investigations the Professor inferred that the superincumbent mass of trachytic ashes and gravel, in alternate layers, which was above the skull, belonged to the pliocene or post-pliocene epoch of geology, which indicates a much greater antiquity for man than has usually been assigned to him. It places his creation anterior to the glacial epoch, and to the closing era of the volcanic eruptions, in California. The time that has elapsed since the deposition of the skull cannot be stated in years. An approximation can only be ciphered out by archæologists and geologists, after long study of the circumstances connected with its deposition.

[We regret that the pressure of matter upon our columns compels us to hold over a part of this exceedingly interesting paper. It will be given in our next.]—ED.

The Remarkable Aerolite in Tennessee.

An account of the aerolite which fell in Tennessee recently has already been given. A correspondent of the Nashville *Press* writes from Cheatam's Cross Roads, under date of August 19: "The place where it struck remained hot for three days, but a copious shower of rain having fallen, which temporarily swelled the streams and water courses, a large flood poured down on the place from the neighboring hills, sending up a constant and immense column of steam. The earth around the place for several yards was quite hot. This gave us the idea that the aerolite which struck must be of a great size. The column of steam continued to ascend all night, and presented a weird spectacle amid the gloom and in the silent depths of the woods. It could be seen from the surrounding hills, like a tall ghost, changing its position betimes and its form, and gradually, as morning approached, melting away in the light of the rising sun. At 10 or 11o'clock that day we organized a squad of about ten, with drills and other quarrying tools, and commenced the work of excavation. We found great numbers of rents and cracks as we descended. Not much powder was needed after the first few blasts.

"We did not propose to work all around the hole, but began five or six yards from the lips of the orifice, and continued to work on that side alone; when we reached the depth of about twenty feet we came to the aerolite, or mass of metal, still hot and covered outside with a slight film or coating of oxide. It is wedge shaped, the heavy end being upward. We cannot account for this except on the supposition that it was globular as it descended; but the contact with so dense a body as a mass of limestone, while in a soft condition, pushed backwards the mass as it passed through and gave it the cone shape which it has. It had passed entirely through the ledge of limestone, and was embedded in a stratum of bluish, tough, putty-like clay, very closely packed and impervious to water. This bed of clay or marl runs sloping up the hill, to what extent or distance I don't know; but at the point where the excavation was made it has that inclination.

"The aerolite we found to measure about seven feet from apex to base, and at the greatest circumference about ten feet round. It is specifically very heavy, and the lump cannot weigh less than five or six tons. We are now exercising our wits about getting it out of the hole, and afterwards we shall have a job of no inconsiderable magnitude in getting it to any highway for transportation. We have written to Washington about it, and have already recieved a telegraphic despatch from the principal of the Smithsonian Institute, saying that if we furnish the requisite evidence as to the facts we stated, he would procure means to have the mass of metal transported to his institute. We are anxious to have this wonder rest among ourselves, and we are taking steps to have the legislature, when the recess is over take cognizance of the matter and make an appropriation of the necessary expenses to have it in the State Library."

Blast Furnace Improvements.

At the Gartsherrie Ironworks a series of very curious experiments is now being conducted with a new blast furnace patented by Mr. Gorman. The experiments have not as yet given satisfactory results, but in the absence of direct information about the future intentions of the inventor and the authorities in the Gartsherrie works, it would be premature to call them failures. We are desirous, however, to express an opinion upon the theoretical merit of the invention, and upon the probability of its ultimate practical success. Mr. Gorman's plan is to provide the blast furnace with two side channels or pockets extending vertically from the level of the tuyeres up to the charging platform, and forming special shafts or compartments for charging the coal into, while the ore either all by itself or mixed with an additional charge of coal is brought into the blast furnaces in the usual way; the furnace proper being open at the top. In this furnace it is the intention of the inventor to keep the coal separate from the ironstone until the former has been converted into coke and the latter has arrived close above the tuyeres. At that place the side-pockets which contain the charge of fuel open into the main stack of the furnace itself, and there the mixture between coke and ore takes place. The coal chambers are closed at the top and the gas from the coal can be utilized as fuel or led into the main stack of the furnace for affecting the reduction of ore. In this manner it is expected that the ironstone will be reduced by the action of the ascending current of gas alone, and arrive at the openings of the side pockets in the state of spongey iron or reduced metallic iron which requires nothing but carburization for melting and running down into the hearth. The short space over the tuyeres should then act as a cupola for melting the spongey iron by means of the coke brought down into the space from the side pockets of the furnace. There is no doubt that a convenient manner of coking the coal inside the furnace without allowing the gases to escape, and without abstracting from the materials in the furnace too much of that heat which they require for reduction and melting, would be beneficial when applied to the Scotch blast furnaces; but the problem of separating the solid coal from the charge, and of reducing the ironstone by the action of gases alone, has never been brought to a satisfactory solution, however ingeniously proposed and however often and carefully experimented with. In the blast furnace itself the ore is in direct contact with solid carbon. All particles of carbonic acid when in contact with coal become reduced to carbonic oxide, and the carbonic oxide in contact with the ore becomes carbonic acid again. This state of mobility or virtual motion of atoms seems to be requisite for the work of reduction, and it appears that an atmosphere of carbonic oxide alone is not capable to effect the reduction of ironstone at that low temperature. It is clear indeed, that the low temperature maintained in the zone of reduction is due to the presence of the solid carbon, since the process of converting carbonic acid into carbonic oxide by bringing it into combination with another atom of carbon is a cooling process absorbing fully one-third of the total heat which that carbon would evolve when completely burned in the open air. If we attempt, therefore, to effect the reduction of iron ores by a stream of carbonic oxide gas alone, we lose this cooling agency, we effect the combustion of the carbonic oxide gas at the expense of the oxygen from the ore, and we thereby raise the temperature of the zone. The ore, under these circumstances, will become heated more and more until it will commence to melt without reduction.

The furnace, if kept hot enough at the tuyeres, will then produce nothing but liquid oxides, silicates, &c., in the form of a slag, which is simply the iron ore melted but not reduced. To obtain such a result, however, a great supply of heat from an exterior source is necessary, since there are zones below that zone of reduction just referred to, which require heat in order to keep that molten iron stove liquid at a time when it no longer gives off oxygen to the gas in contact with it. In a common blast furnace, where no such special source of heat is available, the probable result of a separation of the coal from the ore, such as proposed by Mr. Gorman, would be to set the whole furnace fast in a few minutes. If, on the other hand, a regenerative gas furnace, or an air furnace fired externally, is employed for that purpose, and connected with a stack or hopper for reducing the ore by ascending gas, a continuous and very profuse supply of liquid slag can be relied upon as the result of this mode of reducing iron ores by an atmosphere or current of carbonic oxide gas.—*London Engineering.*

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

81,112.—SLATE TRIMMING MACHINE.—Henry J. Ruggles, Poultney, Vt.

I claim the arrangement of the cutting-edges *f* and *g* of the moving knife, so as to cut from both opposite edges of the slate, and cause the cut to terminate at a distance from either edge, substantially as and for the purposes herein specified.

81,136.—METHOD OF GENERATING GAS FROM PETROLEUM.—Car Carpenter, Buffalo, N. Y.

I claim, 1. The method herein described of generating illuminating gas from crude petroleum or other impure liquid hydrocarbons, consisting in, first, vaporizing the same, by subjecting a body thereof to a low boiling heat in a boiler, and then converting said vapor into a fixed gas, by subjecting it to a high heat in a separate retort, substantially as described.

2. In combination with the boiler A, constructed and operating as described, a condenser, E, substantially as and for the purpose described.

3. In combination with the boiler A, constructed and operating as described, the steam or vapor gauge *a*, substantially as and for the purpose specified.

81,149.—MODE OF PREPARING COAL DUST FOR FUEL.—Abraham D. Ditmars, Lancaster, Pa.

I claim preparing coal dust for fuel, substantially as herein shown and described, and for the purposes set forth.

81,164.—METHOD OF REMOVING TIN AND OTHER COATINGS FROM SHEET METAL.—B. H. Harmon and D. B. Sturdevant, Clifton Springs, N. Y.

We claim the process of removing coatings from sheet metal or other materials, by confining the latter in a closed retort, and subjecting it to a current of hot air, as herein set forth.

Also, imparting to the basket containing the scraps a jarring or vibrating action, for the purpose of liberating the melted material, as herein set forth.

Also, constructing the basket holding the scraps with an open or grated bottom, and with perforated sides, in the manner and for the purpose specified.

81,231.—APPARATUS FOR THE MANUFACTURE OF ILLUMINATING GAS.—P. H. Vander Weyde, M. D., New York, N. Y., assignor to Alfred Phillips and John MacDougal, same place.

I claim, 1. The rotating carbonizer, consisting of a revolving disk or disks, operating in connection with shaft or pulleys and chain, as herein described and for the purposes specified.

2. The detachable carbonizer *h h* and *d d d*, with its compartments *a*, *b*, *c*, and *e e*, and valve *v*, as herein shown and described, and for the purposes specified.

3. The gas regulator *k*, with its buoyant-chambers *m m* and interior valve, as shown and described, and for the purposes specified.

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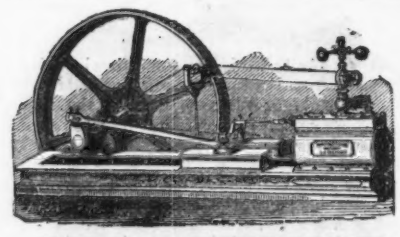

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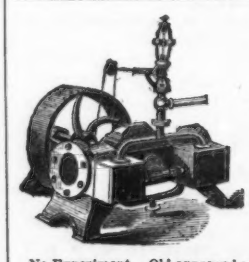

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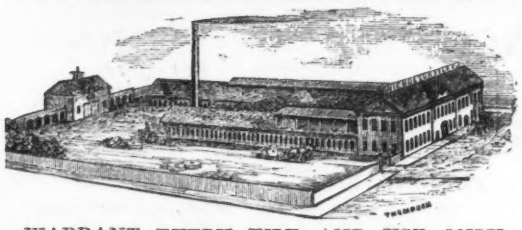

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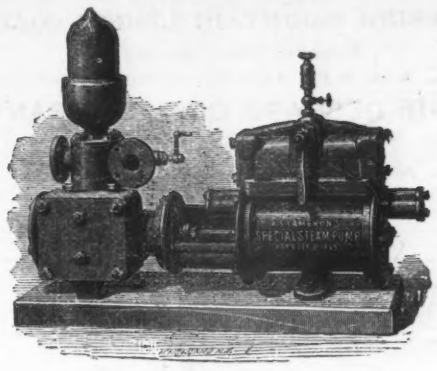

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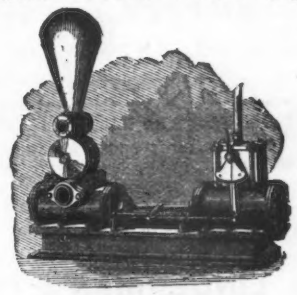

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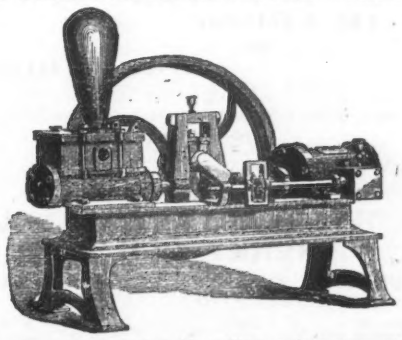

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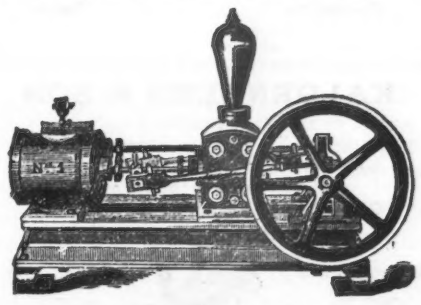

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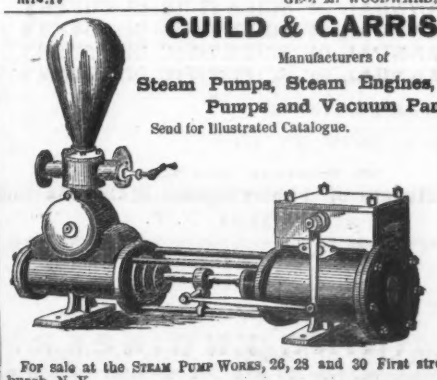

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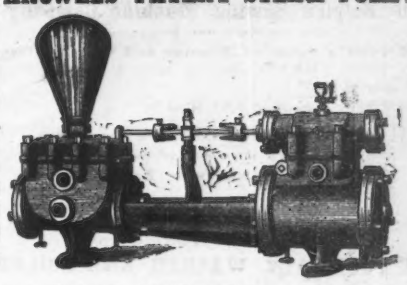

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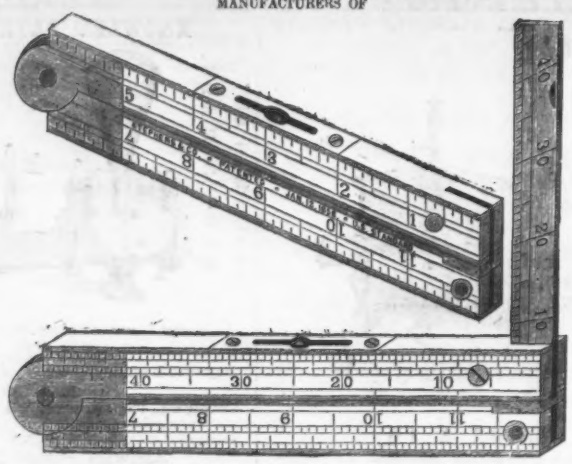

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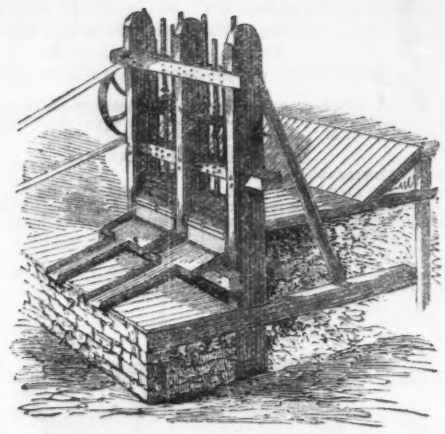

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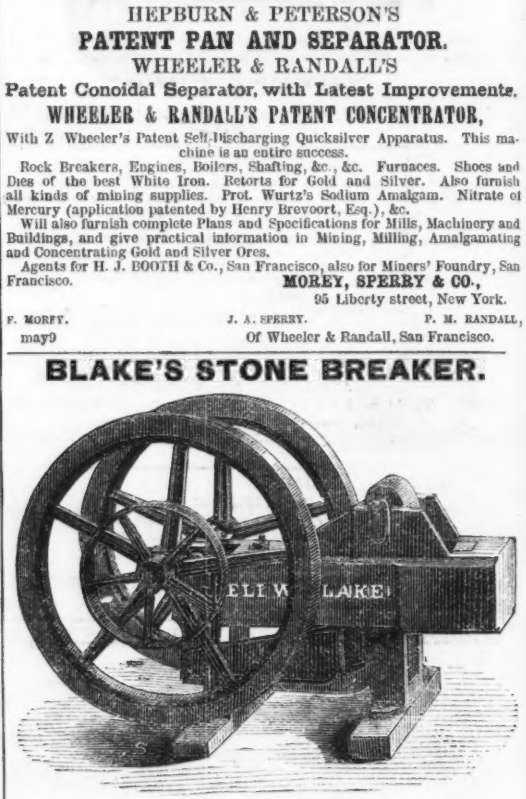

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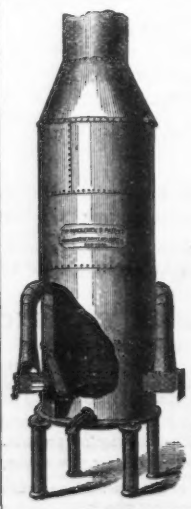

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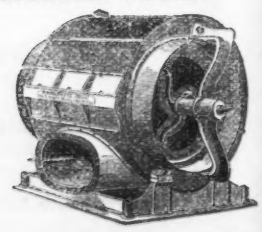

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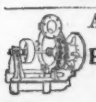

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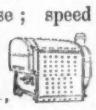

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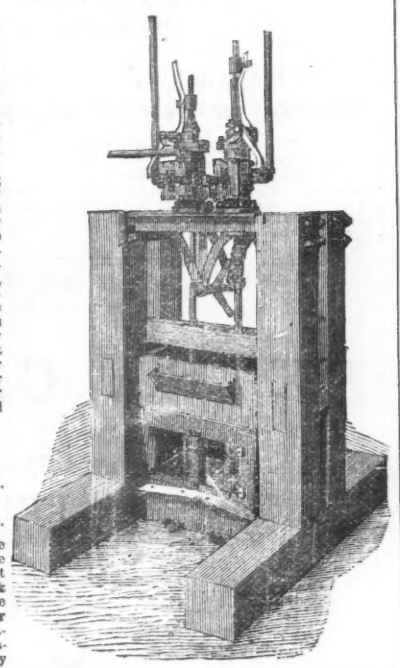

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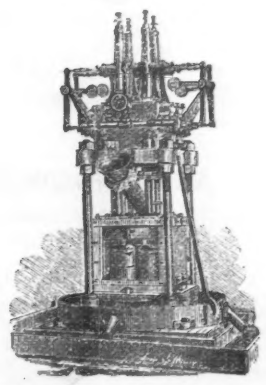

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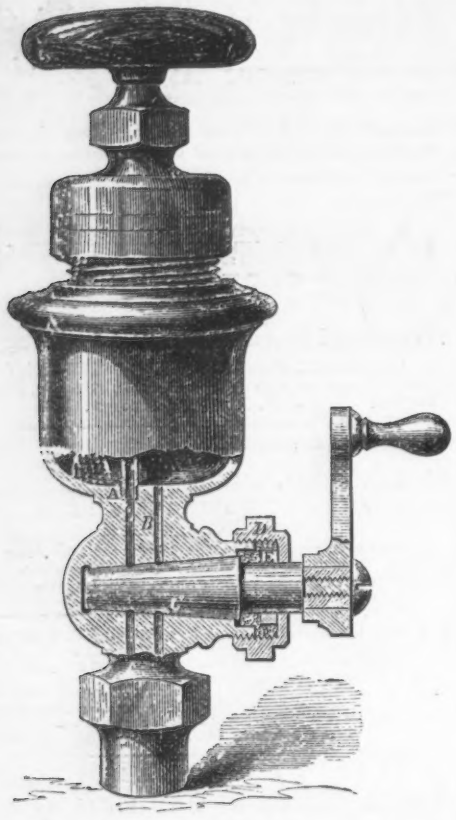
The engraving represents a great improvement in oil cups



whereby leaky or discarded oil cups become useful again and even better than before. The improvement consists in packing the plug, so that no leakage is possible. The part which is seated in the stem serves for one purpose only. On reference to the engraving, it will be seen that A, is a pipe for the admission of steam to the surface of the oil in the cup, and B, the oil hole leading from the cup to the interior of the chest. C, is the plug, and D, the stuffing box, inside of which is the packing and the ring E. Engineers and machinists will readily comprehend the effectiveness, durability, and convenience of such oilers, and will be glad to use them in preference to the ordinary oil cup for steam chests and cylinders. A patent was allowed MR. HARLIN of the firm MCNAB & HARLIN, 86 John street, New York City, on July 6th, 1868. A large number of oilers are being manufactured by the same firm.

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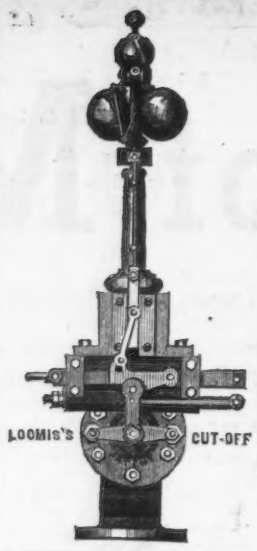

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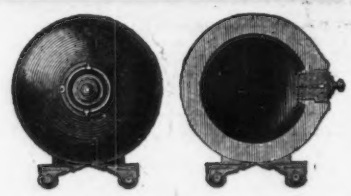

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